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THE WORLD'S WORK

NOVEMBER

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The World's Work

WALTER H. PAGE, EDITOR

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A NIGHT FLIGHT OF THE WRIGHT AEROPLANE

[This photograph was made at 7.10 P.M., September 9th, just before Mr. Orville Wright descended from a flight. It was dusk and the moon had risen. Mr. A. Radclyffe Dugmore was making pictures for THE WORLD'S WORK, and to avoid carrying home one unexposed plate took a chance snap-shot of one-hundredth of a second at the flying machine. Three hours were required for developing the negative. The fastest plate and lens to be had were used, and made possible this remarkable photograph. Note the delicate rendering of the shadows on the moon.—THE EDITORS.

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THE WORLD'S WORK

NOVEMBER, 1908

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VOLUME XVII

NUMBER 1

The March of Events

THE campaign, in its serious aspects, will be to the last a debate about the relative fitness of the two principal candidates for the Presidency rather than a discussion of old political principles or doctrines. There have been few better political speeches in recent years, if any, than Governor Hughes's; and his most effective arguments have been, in substance, an explanation of the safe qualities of Mr. Taft and of the uncertain qualities of Mr. Bryan. The old party doctrines have played a small part in public discussion. Even the tariff has not taken hold on the public mind.

The one thought that in some form or other sinks deepest is: Which party or which candidate can better be trusted safely and wisely to keep the great corporations from controlling politics and from restraining trade and from making improper discriminations? For corporate conduct is the one living subject.

This fact, by the way, gives the great corporations themselves such an opportunity as never came to them before, each for itself to make its own methods and position clear; for the public will listen to them now with the utmost eagerness. They will receive attention if they say what they wish and what part they will play in all their relations to the public now when industry is shaping political and social thought and new standards are coming also in commercial ethics.

II

The vituperative part of the campaign, in itself nauseating, brought one good result — the retirement from official campaign position and recognition of some undesirable men. In this cleansing of the lists, a good deal of amusing and some disgusting hypocrisy and pretense were shown. The devil took holy orders more than once in that process, and some rascals who have not yet been caught became amazingly pious.

Yet there is no such thing as too scrupulous a campaign; and it is just as well to have the wicked themselves set up a high standard of conduct in public. Such a standard will never bother the scrupulous. And once set up it will remain. After all, the old quarrel between the pot and the kettle puts tidy cooks on their guard in using them.

In a word, the political managers have made up their minds that the public demands clean hands in asking for its votes and in handling its campaign funds; and they are right. The public soon becomes weary of vituperation and a campaign of personalities is a low performance. But in this case the public laughs last and best; for the politicians have put themselves on record as even more scrupulous than most men had thought of asking them to be. The public, which is the only immortal witness of these pious acts and has been through many campaigns and will go through many more, although suspicious of sudden conversions, is nevertheless glad to see conversions of any sort. And the public will remember all the saints of this pious year for their encouragement in years to come. It is of the nature of newly-acquired piety to need watchful encouragement.

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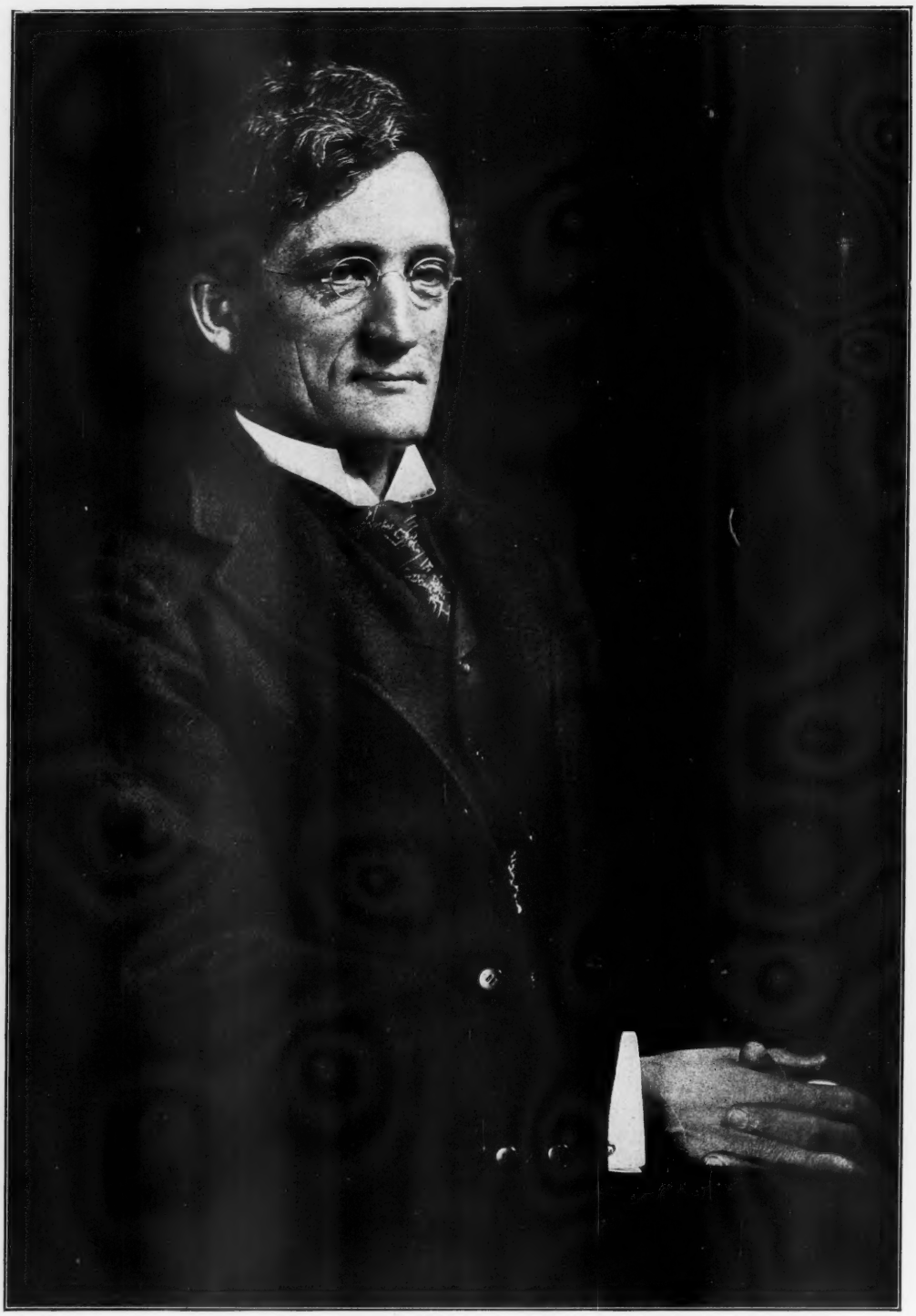
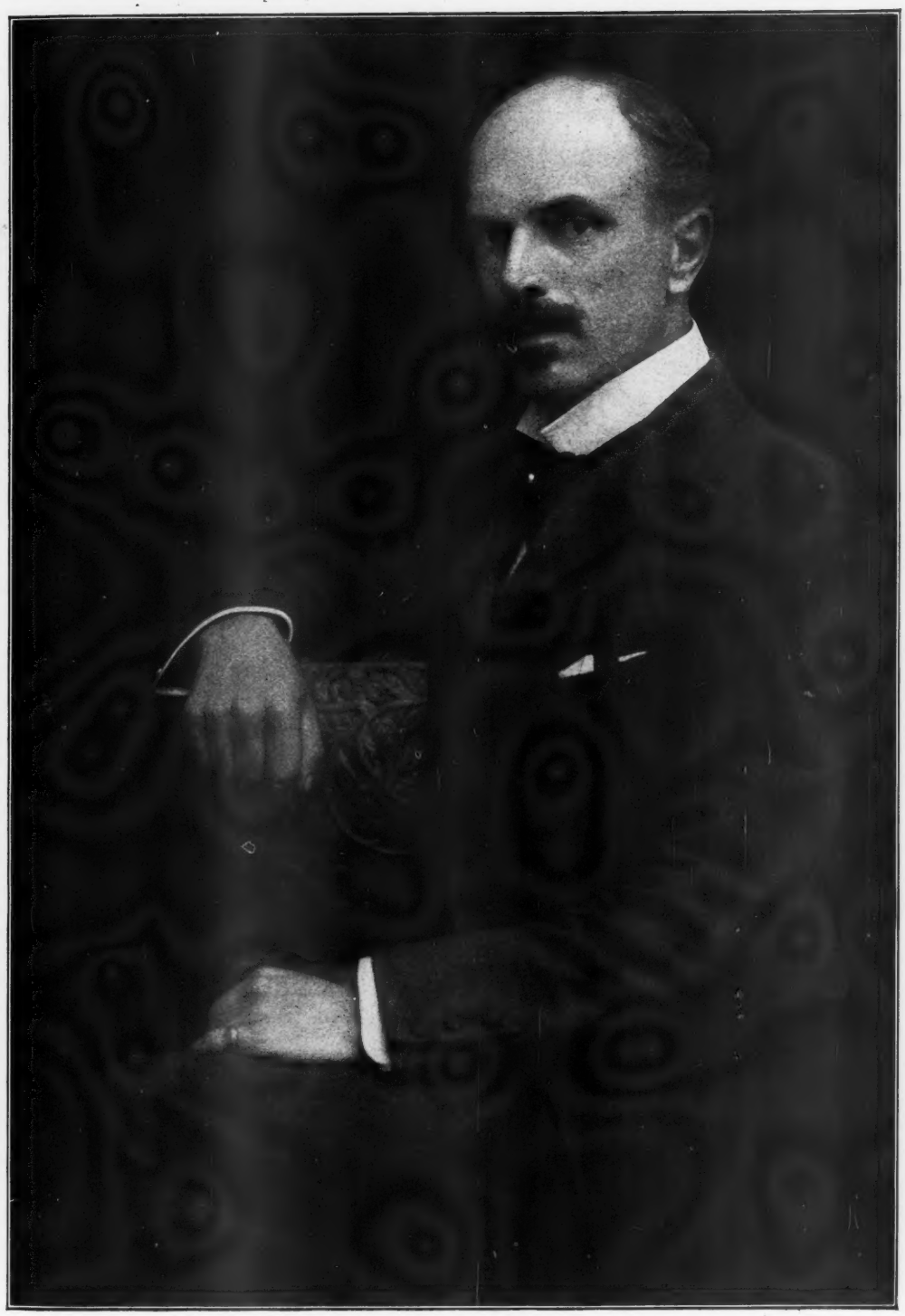


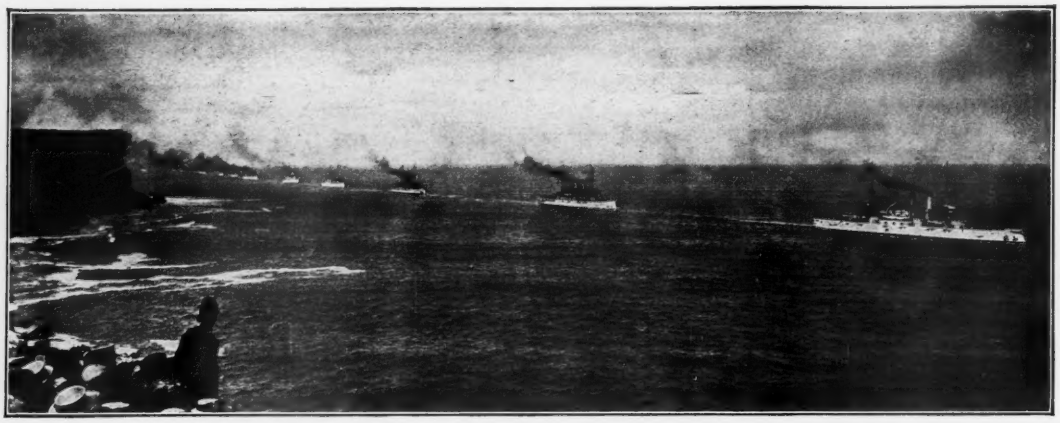
DR. LIBERTY H. BAILEY

DIRECTOR OF THE NEW YORK COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY AND CHAIRMAN OF THE COMMISSION ON COUNTRY LIFE



MR. MAURICE HEWLETT

THE DISTINGUISHED ENGLISH NOVELIST, WHOSE LATEST BOOKS ARE "THE SPANISH JADE" AND "HALFWAY HOUSE"



THE AMERICAN FLEET STEAMING INTO SYDNEY, AUSTRALIA

OUR VISIT HAS STIRRED UP A POPULAR DESIRE FOR MORE BRITISH WARSHIPS IN THE PACIFIC AMONG THE BRITISH COLONIES THAT WERE APATHETIC ABOUT THE NAVY

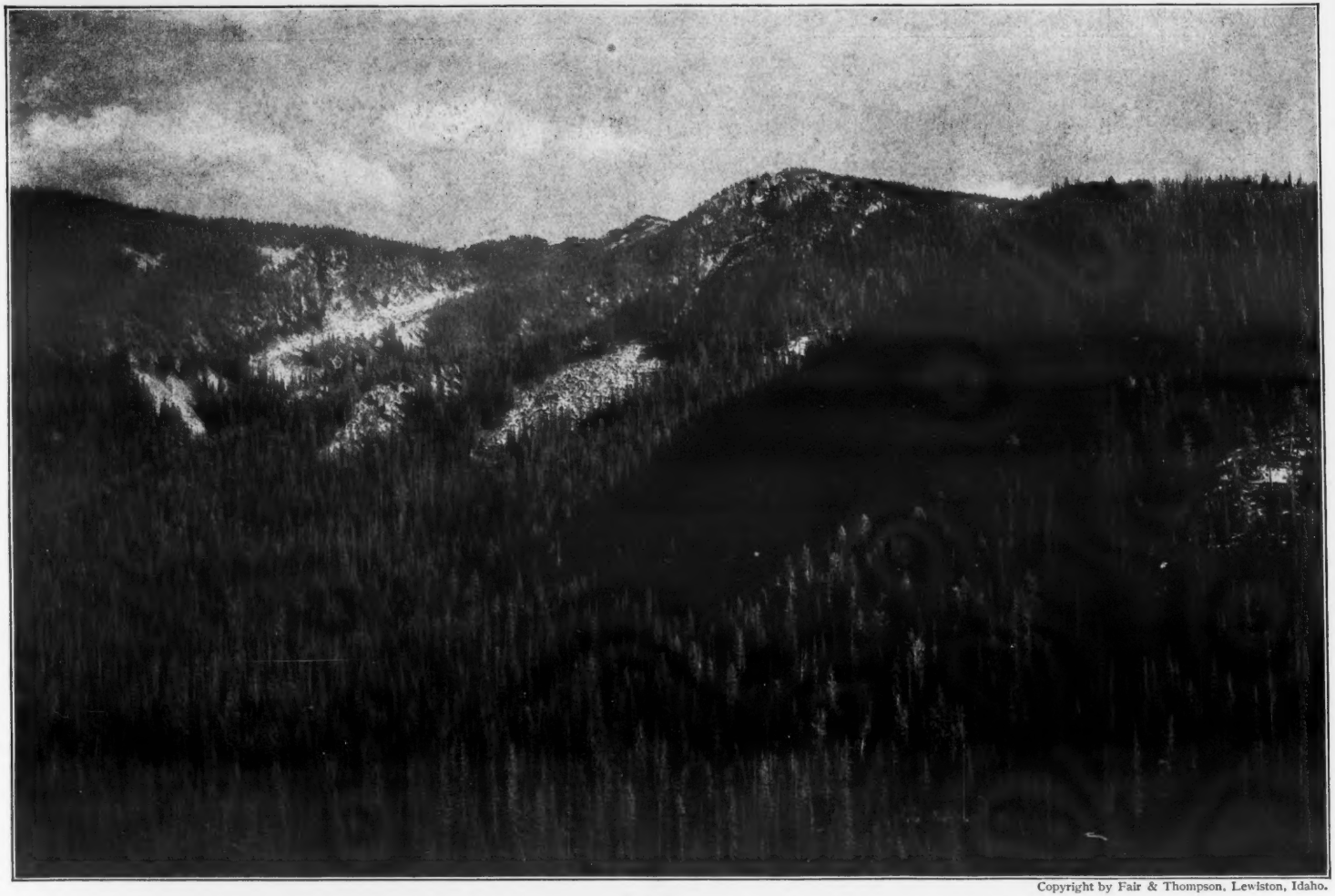
AMERICAN SAILORS PARADING DURING THE RECEPTION AT SYDNEY

DURING THE VISIT OF THE AMERICAN FLEET AT SYDNEY, NEW SOUTH WALES, BANQUETS, EXCURSIONS, DISPLAYS OF FIREWORKS, REGATTAS, SPORTS, AND MILITARY REVIEWS WERE PROVIDED FOR THE OFFICERS AND MEN. THE COMMONWEALTH GOVERNMENT AND THE CITIZENS JOINED IN THE WELCOME. THE CARNIVAL WAS CONTINUOUS FOR A WEEK

Photograph by Underwood & Underwood

COUNT LEO TOLSTOY

WHOSE EIGHTIETH BIRTHDAY THIS YEAR BROUGHT HIM FELICITATIONS FROM ALL OVER THE WORLD



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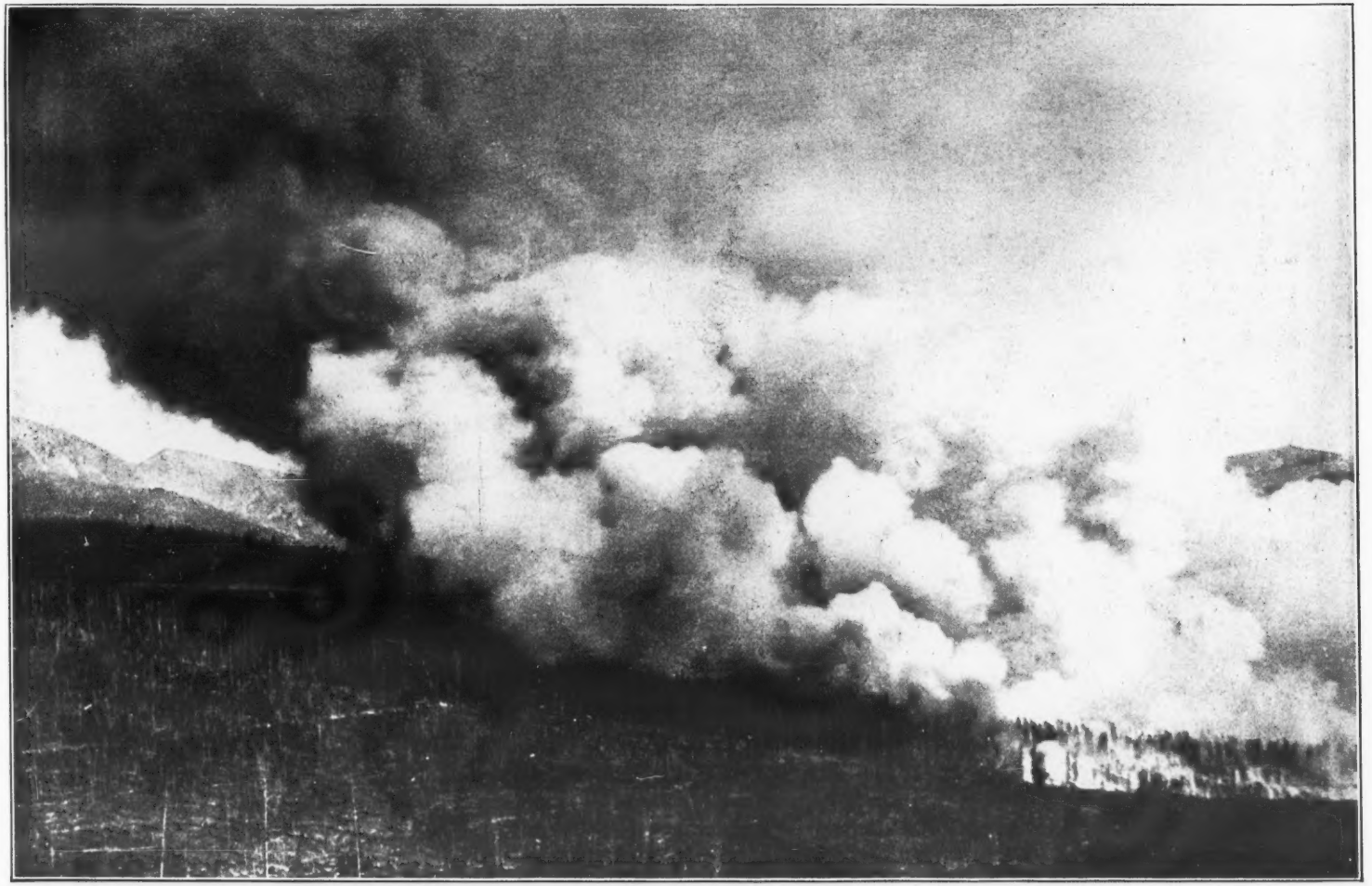
A WESTERN FOREST WHICH HAS NEITHER BEEN CUT NOR BURNED

THE WESTERN FORESTS, EXCEPT THOSE ON THE PACIFIC SLOPE, ARE IN A COUNTRY OF LITTLE RAINFALL AND IT IS PARTICULARLY NECESSARY THAT THEY HOLD IT

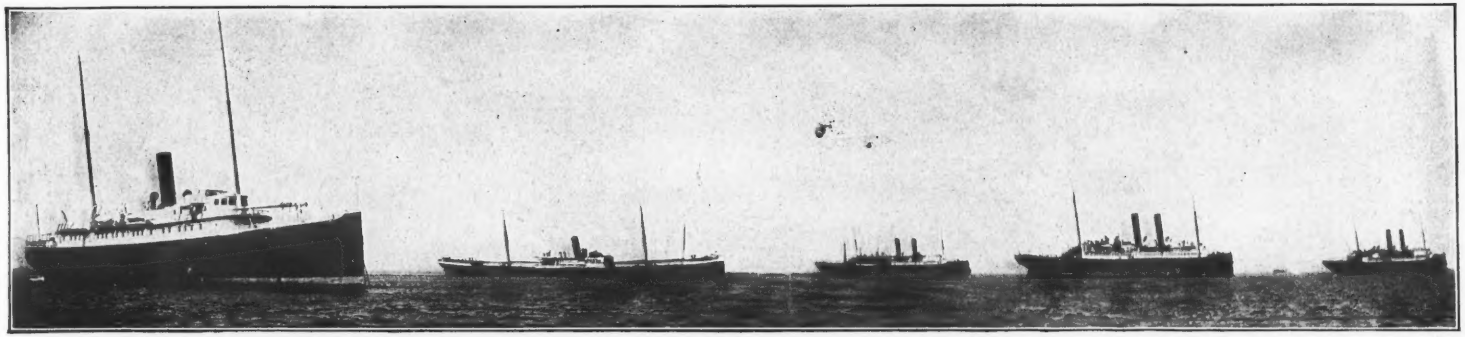


A FOREST FIRE IN THE EASTERN ROCKIES SEEN FROM A DISTANCE

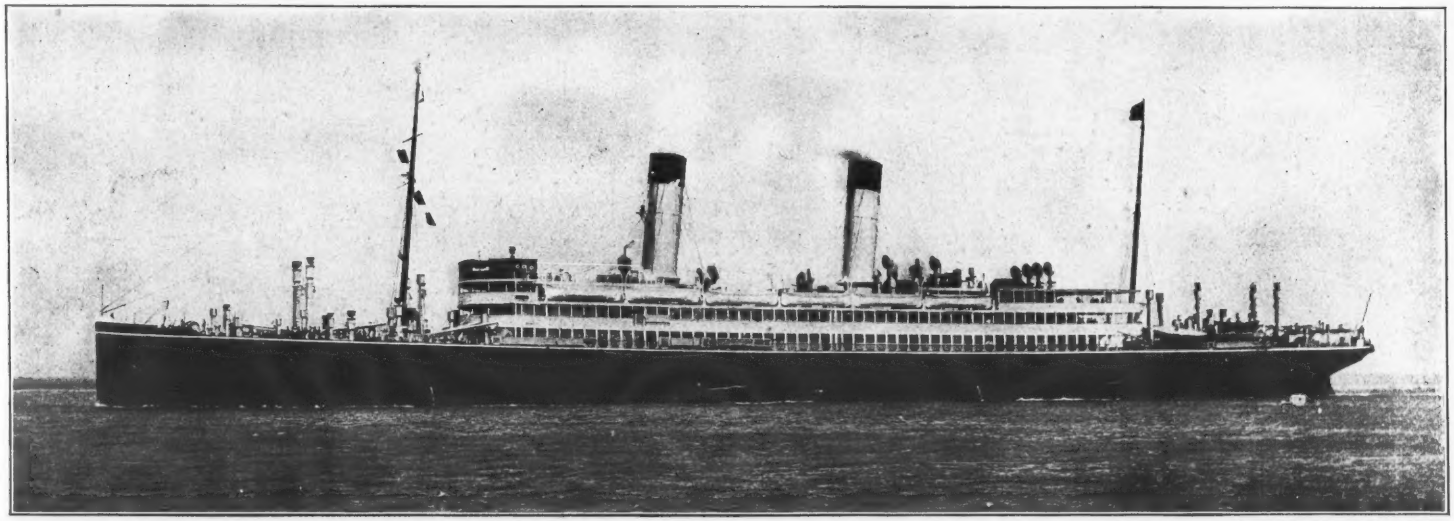
DURING THE PAST SUMMER, THERE WERE BAD FIRES IN ALL PARTS OF THE UNITED STATES AND CANADA AS A RESULT OF PROLONGED DROUGHT. THEY DESTROYED TOWNS AND VILLAGES AND MILLIONS OF DOLLARS' WORTH OF TIMBER, WHICH THE COUNTRY, IN THE FACE OF A LUMBER FAMINE, CAN ILL AFFORD TO SPARE. PREVENTIVE MEASURES HAVE PROVED SUCCESSFUL IN THE NATIONAL FORESTS AND ABROAD

AFTER A FIRE IN THE ROCKIES

MILES OF "DEAD AND DOWN" TIMBER WHICH, DURING THE LONG DROUGHTS, FEED REPEATED FIRES SO THAT A SECOND GROWTH HAS LITTLE CHANCE



FIVE AMERICAN STEAMSHIPS LAID UP AT SAN FRANCISCO WITH NOTHING TO DO. THEY HAVE BEEN IDLE FOR FROM SIX TO EIGHTEEN MONTHS

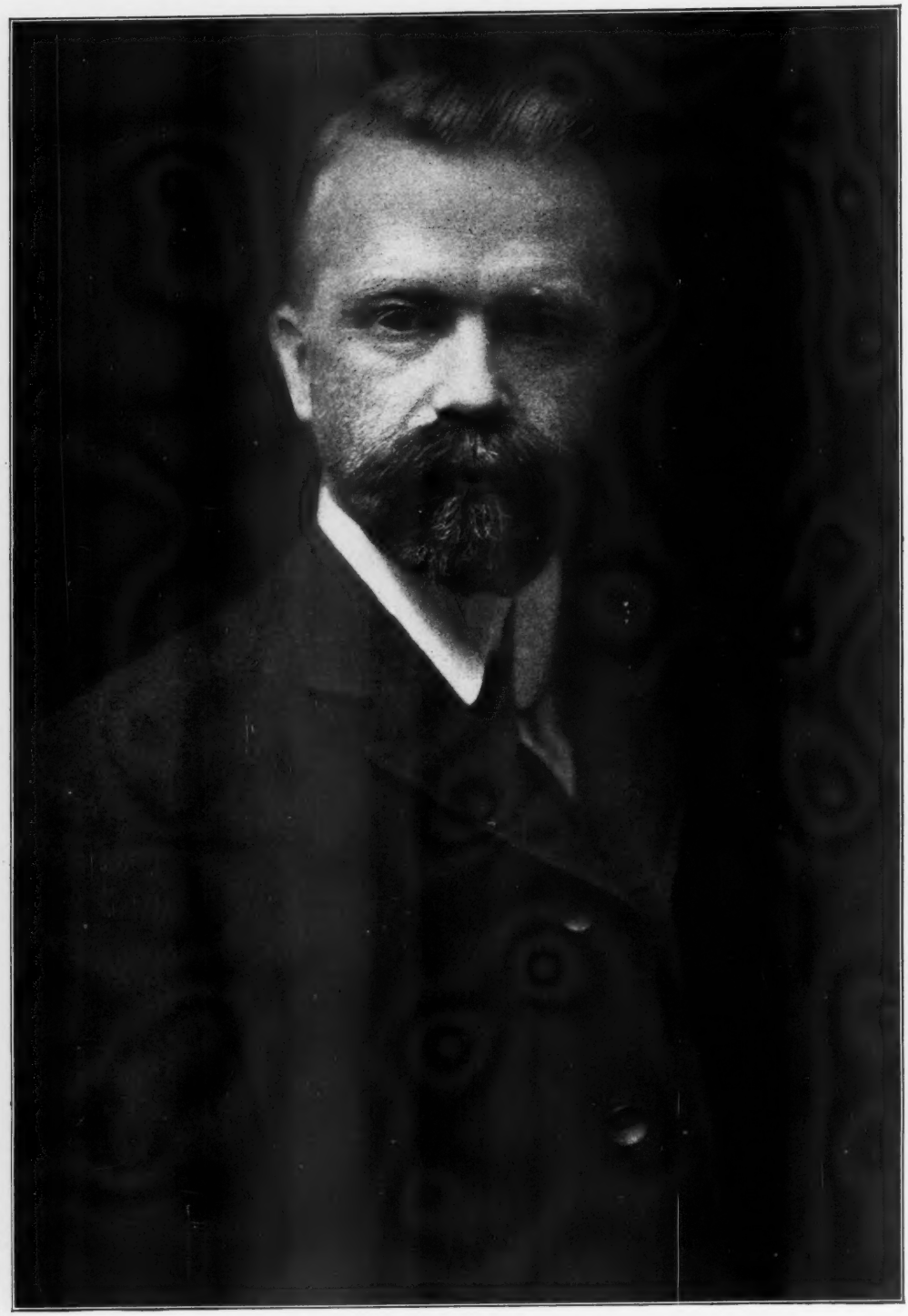


By courtesy of *Collier's Weekly*

THE "TENYO MARU," A TRIPLE SCREW TURBINE LINER OF THE TOYO KISEN KAISHA, WHICH BEAT THE PACIFIC SPEED RECORD FORMERLY HELD BY THE PACIFIC MAIL LINER "KOREA."

JAPAN'S COMMERCIAL CONQUEST OF THE PACIFIC

[See page 10937]



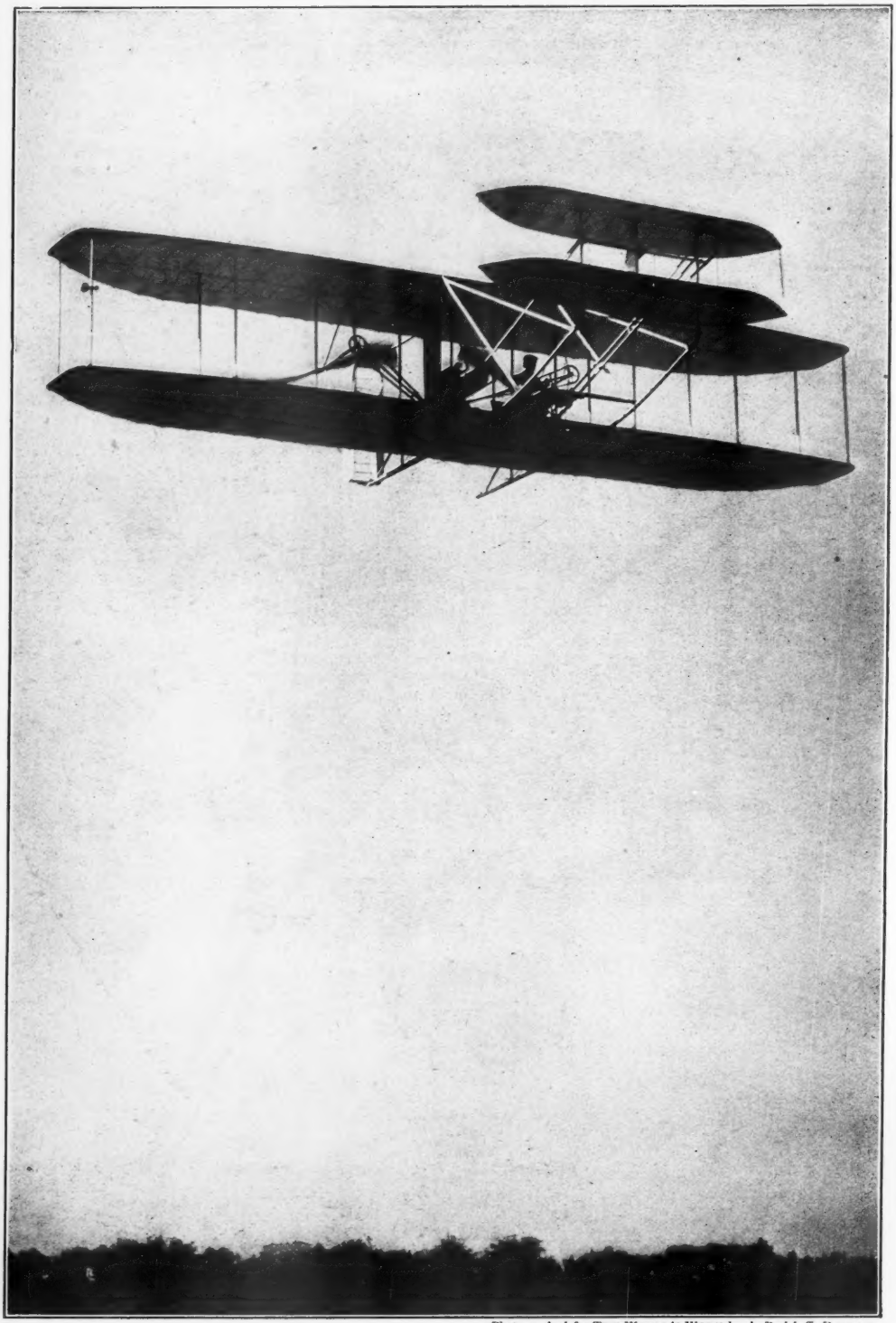
DR. LUTHER H. GULICK

PRESIDENT OF THE PLAYGROUND ASSOCIATION OF AMERICA

BRIGADIER-GENERAL WILLIAM WALLACE WOTHERSPOON

PRESIDENT OF THE ARMY WAR COLLEGE. WHO HAS BEEN STUDYING THE STRATEGY OF WAR WITH AIRSHIPS

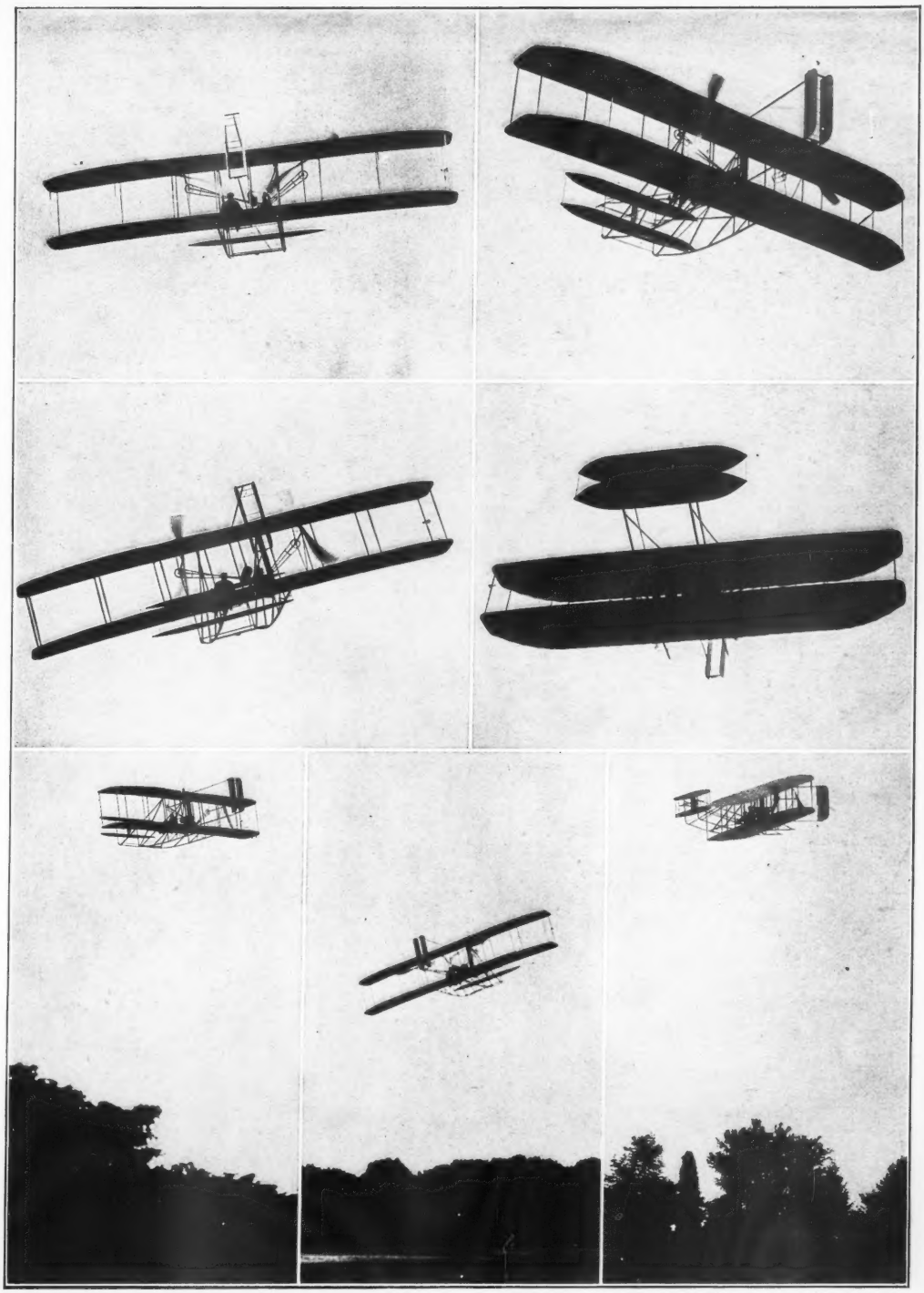
[*See page 10913*]



Photographed for THE WORLD'S WORK by A. Radclyffe Dugmore

MR. ORVILLE WRIGHT AND THE AEROPLANE AT FORT MYER, VA.

TAKEN ON THE DAY MR. WRIGHT MADE THE WORLD'S FIRST HOUR FLIGHT BY AEROPLANE



Photographed for THE WORLD'S WORK by A. Radclyffe Dugmore

THE AEROPLANE IN ITS FLIGHT OF AN HOUR

IT IS FORTY FEET FROM TIP TO TIP. BY TWISTING THE WINGS AT THE OUTER ENDS MR. WRIGHT CAN BALANCE, TURN, AND WHEEL IN SHARP CIRCLES. THE LITTLE VERTICAL RUDDERS AT THE REAR WILL PROBABLY BE OMITTED FROM FUTURE MACHINES

THE LATE LIEUTENANT THOMAS E. SELFRIDGE

PROBABLY THE MOST WIDELY INFORMED EXPERT ON DYNAMICS OF THE AIR AND MECHANICAL FLIGHT, KILLED BY THE FALL OF THE AEROPLANE AT FORT MYER, VA.

CAMPAIGN FUND PUBLICITY, BEFORE OR AFTER?

IT IS a distinct gain over our previous political practice that both the principal parties are pledged by their Presidential candidates to make public all contributions to their campaign funds. Mr. Taft's plan is to publish them after the election, but Mr. Bryan publishes the important ones before the election. The President and Mr. Taft have argued that the publication of the names of contributors before the election would subject some contributors to misrepresentation and misunderstanding — would, in a word, give the opposing party material for personal misrepresentation.

On this subject, Mr. Bryan undoubtedly has the stronger position. No man ought to contribute to any campaign fund who has any reason to conceal his contribution, and no campaign committee ought to accept a contribution that it has any reason to conceal, either for the moment or at any time. If publicity is a preventive of evils of this sort, prompt publicity is surely a better preventive than belated publicity. To argue that contributors to campaign funds would be misrepresented by publicity before the election is the same as to show only half confidence in the advantages of publicity. It is in fact going only half the way toward frankness.

THE ARCHBOLD-FORAKER LETTERS

WHAT is a calm and fair judgment of the whole sensation caused by Mr. Hearst's publication of letters written by Mr. John D. Archbold, of the Standard Oil Company, to Senator Foraker?

First, the letters were stolen from the office of the Standard Oil Company. A man of a fine sense of honor would not have made stolen letters public, unless they involved the safety of the nation or were of some such large import as to overrule all personal considerations.

In the next place, the letters were published out of connection with what went before and with what came after them; and unfair inferences are easily drawn from hostilely selected parts of any correspondence. There is no man of large affairs whose correspondence could not be twisted by this method so as to appear to condemn him.

But Mr. Archbold has not denied the authenticity of the letters, and Senator Foraker, in his long explanation, most of which was irrelevant, assumed and thereby acknowledged the authenticity of the most significant ones.

The letters of the greatest significance are these — all written by Mr. Archbold from 26 Broadway, the office of the Standard Oil Company, to Senator Foraker at his residence in Washington:

"February 16, 1900.

"*My Dear Senator:*—Here is still another very objectionable bill. It is so outrageous as to be ridiculous. But it needs to be looked after and I hope there will be no difficulty in killing it. Am anxious to hear from you as to the situation as a whole."

"March 9, 1900.

"*My Dear Senator:*—I have your favor of last night with enclosure, which latter, with letter from Mr. Elliott commenting on same, I beg to send you herewith. Perhaps it would be better to make a demonstration against the whole bill, but certainly the ninth clause, to which Mr. Elliott refers, should be stricken out, and the same is true of House Bill No. 500, also introduced by Mr. Price, in relation to foreign corporations, in which the same objectionable clause occurs. Am glad to hear that you think the situation is fairly well in hand."

"March 26, 1900.

"*Dear Senator:*— In accordance with our understanding, now beg to enclose you certificate of deposit to your favor for $15,000. Kindly acknowledge receipt and oblige."

"April 17, 1900.

"*My Dear Senator:*— I enclose you certificate of deposit to your favor of $14,500. We are really at a loss in the matter, but I send this and will be glad to have a very frank talk with you when opportunity offers, if you so desire. I need scarcely again express our great gratification over the favorable outcome of affairs."

"February 25, 1902.

"*My Dear Senator:*— I venture to write you a word *re* the bill introduced by Senator Jones of Arkansas, known as S. 469, intended to amend the act 'to protect trade and commerce against unlawful restraints and monopolies, etc.,' introduced by him December 4th.

"It really seems as though this bill is very unnecessarily severe and even vicious. Is it not much better to test the Sherman act before resorting to a measure of this kind? I hope you will feel so about it, and I will be greatly pleased to have a word from you on the subject. The bill is, I believe, still in committee. With kind regards, Yours very truly."

Senator Foraker in his explanation made public another letter from Mr. Archbold, written four years later:

"May 7, 1906.

"*My Dear Senator:*— In the possibility of an action being brought against us in Ohio, are you in position to accept a retainer from us in connection with such a matter?"

To this Senator Foraker replied, very properly:

"*My Dear Sir:* — My duties in the Senate have so multiplied that I found it necessary to retire entirely from the practice of the law. I have not taken any new employment for more than two years past.

"On this account, as well as because of my relations to the public service, I cannot accept a retainer in the contingency named, as I would be very glad to do if it were otherwise.

"Assuring you of my proper appreciation for the compliment involved in the inquiry you make."

Senator Foraker took his seat in the Senate March 4, 1897. In 1899, he admits in his explanation, he accepted the employment of the Standard Oil Company, and the letters show that he received money from Mr. Archbold during the period of the correspondence.

There is no proof that the $15,000 and the $14,500, mentioned in two of these letters, were paid to Senator Foraker for services in connection with the legislative bills mentioned in other letters. The money-payments and the mention of the bills may have had no direct relation to one another in either man's mind. Senator Foraker declares that they did not have, and Mr. Archbold has said that all his dealings with Senator Foraker were legitimate. And THE WORLD'S WORK is old-fashioned enough to prefer to regard men as innocent till they are proved guilty, and to give every man the benefit of doubt to the utmost.

Giving Mr. Archbold and Senator Foraker, then, the full benefit of every possible doubt, what remains?

This remains: While Mr. Foraker was a Senator of the United States from Ohio, he was by his own admission, in the employment of the Standard Oil Company. This he confesses in his statement. During that time, Mr. Archbold, a Vice-President of the Standard Oil Company, wrote him the letters above quoted about bills in the Ohio Legislature and about one bill in Congress that were objectionable to Mr. Archbold; and Mr. Archbold, while this Senator was in his pay, asked him to "look after" one bill, and to "make a demonstration" against another bill.

To give both men the full benefit of every doubt, let us still assume that Senator Foraker's paid-for service to the Standard Oil Company had nothing to do with Mr. Archbold's requests about these bills — that he was paid to do some legitimate service and that he was asked to look after these bills as a favor — what then remains?

This still remains: Two men of such a blunted sense of propriety as to forfeit public confidence. There has never been any code of ethics, commercial or political, approved by American public sentiment, which excused a man who sat as a Senator of the United States while he received money from any client who wrote him to "look after" proposed legislation, either state or National, however vicious the proposed legislation may have been. Men of a right sense of public duty and of public service do not get into this relation to one another. When two men do get into this relation to one another, the public suspicion is irresistible that one is buying and the other is selling his official influence. The public mind will not rid itself of this suspicion. If they were not guilty in intent, they were so blunt to propriety as to incur the certain suspicion of guilt.

However innocent Senator Foraker may have been of a purpose to do wrong, he has lost the confidence of the people of the United States. However innocent Mr. Archbold may have been of a purpose to do wrong, he has incurred the suspicion of the people of the United States. Senator Foraker's political career is probably ended. His influence surely is ended. Mr. Archbold will be suspected, as his company will continue to be suspected, of using improper influences, so long as he and his company refrain from taking the public into their confidence in all their political activities. The public judgment that will condemn a man in office for receiving pay from a corporation of wide interests, under these circumstances, will surely condemn a man in business also for making payments to a senator.

This is not a mob-sentence, nor a muck-raking condemnation. It is a standard of judgment that must be maintained in public and in commercial life — in politics and in business — unless we are ready to throw away every general and accepted standard of conduct

and to permit every man to do as he will, under the plea that he meant no wrong. Under that plea, we should soon have no standards of judgment at all; for we should simply say that every man, saint and villain alike, has the right to be his own judge.

A WORD TO THE STANDARD OIL COMPANY

THIS magazine has lately published much about the Standard Oil Company, and most interesting chapters they are in contemporary activity. It has preferred to tell the facts of achievement rather than to repeat old tales of scandal; and it has preferred to permit the courts to decide the question of guilt or innocence in the Government suits, now pending against the Standard Oil Company. And perhaps this frank and friendly, but disinterested, attitude toward the Standard Oil Company warrants an open word of advice.

Your great organization whose efficiency is the envy of the commercial world, from whose admirable business system governments have taken lessons in the conduct of great practical affairs, whose employees are considerately treated and are most loyal, whose customers the world over are admirably served, whose commercial dealings are models of good business method and probity — still your organization is suspected by a large part of the public, and detested by thousands of persons who know, of their own knowledge, absolutely nothing about it. No tale can be told of its iniquity that does not find ready acceptance.

This widespread suspicion has come from several causes — from the enmity, or jealousy, of outstripped rivals, from socialistic and political attacks on trusts and on all great wealth, from "muck-raking" magazine crusades against your company and its founder, but still more from your policy of suffering all criticism, whether deserved or not, in silence, which the public interprets as a confession, and, most of all, from the suspicion which has arisen of your secret influence in political life, a suspicion which your speaking chiefly through paid press agents and lawyers has kept alive, and which such an incident as the publication of Mr. Archbold's letters to Senator Foraker has hardened into a fixed public conviction of wrong-doing. For the large public, which hears and reads, does not hear nor read nor see the men now active in your company's affairs. They keep in a silent background, and the public gets belated news of your legislative wishes through stolen private letters to men in political life.

It would be a very important event in our commercial and political life if your rich and strong company could have the confidence and esteem of the American people, and if they pointed with pride to it at once as a great American commercial triumph and an organization that exemplified the highest ideals in all its activities as it does in some of them. Then its good influence both on our business and our political life would be overwhelming.

Such a change is by no means impossible. It can be made by right public conduct, by moral courage, and by frankness to the people.

Mr. Archbold's correspondence with Senator Foraker can never be regarded as right conduct. Make its repetition impossible, then, by pledging yourself to the public to use all your political influence hereafter openly, so that the public, who is the principal party to every political and legislative act, will know all that you do.

Again, the American public is the most important personage with whom you deal in all your world-wide activity, and it does not care to deal with go-betweens. When your press agents and lawyers speak for you, the very nature of their employment makes them timid or technical or evasive; and the public which is accustomed to dealing with principals resents this treatment and does not believe what they say.

Be frank with the people and protect your name. When a gambler or a questionable promoter commits a crime or even an indiscretion in the financial world and the newspapers say that "Standard Oil" did it, tell the whole truth, even about men who may own Standard Oil stock. When falsehoods are published about the company, tell the truth to the people over the name of a responsible officer.

When men seek political contributions and then make political capital by abuse of your company, again take the public into your confidence and tell the whole truth about them. When "striking" legislators or congressmen show an itching palm, expose them. When whining moralists beg help for "good causes" and go away and prate of "tainted money," tell the truth about them. You could, if you would, doubtless, within a day blast more hollow, pious reputations by publishing evi-

dence in your possession than Mr. Hearst can touch in a lifetime — evidence that you have a right to publish if you care to. If you showed moral courage, sycophants would cease to fawn around you, pious beggars would disappear, statesmen of easy virtue and political and industrial promoters would avoid you. The public would in a very little while see that you respected it, and it would welcome your help in ridding church and state of men of doubtful methods.

If, then, when you should say to the public that a bill in Congress or in any legislature is a bad bill, or that another bill is a good bill, the public would hear you, respect you, and welcome your commercial experience and knowledge in helping to make the best laws possible. You would find public opinion a much more powerful ally than any retained senator or any number of attorneys.

And public opinion is at your service at any time that you will frankly and openly ask its service in good faith. But you cannot get it by employing men, however legitimately, to secure it for you. It cannot be bought nor got by any secret method. You must work in the open, or continue to be suspected and hated.

This is good advice to some other corporations, too; for there are others whose private letters to United States senators, if they were stolen and published, would not be harmless reading.

"ALL THE BIG FELLOWS DO IT"

MR. ARCHBOLD'S letters to Senator Foraker have a much wider importance than their effect on the campaign or on either the writer or the recipient of them. The man in the street will tell you in his half thoughtless way but with an easy credulity of evil that "all the big fellows do it" — that in high commercial and financial life "dropping a little money" is the customary thing in dealing with councils and legislatures and Congress. And he will give nobody the benefit of any doubt about criminal intent.

Just to what extent it is true that "all the big fellows do it" no careful man would hazard a guess. But bribery, even in its "gentler forms," is surely not a common crime. Still a large part of the small-business class believe that it is well-nigh universal among the rich. And every rumor or suspicion fortifies this belief till the thoughtless man of small affairs comes to believe that most if not all successful men of large affairs are corrupt, and even that corruption is necessary for success. Then, when a wild politician comes along declaring that our commercial and political life is rotten to the core, such men believe him. Newspapers, careless of fact but careful of circulation, help to spread and to deepen this belief.

The manager of a newspaper that loves large headlines one day saw one of his artists drawing bay-leaves around the head of a figure in a cartoon. "Cut out the bay-leaves, John. They are no good. Swat 'em. That's what sells papers."

Presently we go so far from fairness and sanity that a fierce campaigner triumphantly asks the Attorney-General of the United States "How many of the hundred or two trusts have you prosecuted, sir?" The easy inference is that all trusts must be prosecuted as soon as possible and that an administration that has not gone more than a little way down the list is making a bad job of it and is not a sincere enemy of wealth nor a real friend of the people.

This frenzy will pass with the campaign. But it will leave permanent results on the mind of the masses, especially the masses of unsuccessful men.

There is every reason to believe that there is a continual improvement in business morals. The public is exacting a higher standard of conduct than it once exacted, and experience has taught the whole commercial community many a wholesome lesson. Men are not worse than men were a generation ago, but better. They are more scrupulous and more of them are scrupulous. But at the same time it is well to remember as the improvement goes on that the people are more suspicious. In a sense this is right. The people ought to be more watchful and emphatic in their condemnation of evil. But there is an added danger in their willingness to believe evil on insufficient evidence. The managers of great companies, therefore, are under the necessity of being not only honest but scrupulous and careful and frank in proportion to the conspicuous positions that they hold.

HOW THE CORPORATIONS MAY REFORM POLITICS

IT HAS been an easy process whereby the worst abuse of all — corporation corruption — has come into our political and industrial life, an abuse in comparison with which

rebates and restraint of trade are but minor immoralities.

As soon as the large corporation came into activity, especially the corporation that needed a franchise or some other form of special legislation by a council or a legislature or Congress, activity was required in council chambers and at state capitals and at Washington to make sure that such legislation was secured. Such activity may be wholly legitimate. But, where special legislation is valuable, it soon comes to be for sale, if men of easy morals control it or have influence in securing it. And corporations save time and trouble if they have friends on the proper committees. If these friends happen to have been the corporations' attorneys or hope to become their attorneys, it is all the easier, they discover, to do a good service for friends.

And presently, since such a legislative career may be made lucrative, men came to seek election for the profit of it. If times are dull, "strike" bills can be prepared, the suppression of which many be worth a consideration. There is, perhaps, not an important corporation in the land that has not at some time been thus "held up." If it yields to blackmail once, it is likely to yield again.

Then there is one step further. When a corporation that has been "held up" desires special legislation, its blackmailers become its agents. Thus they come to pay even for many a piece of good legislation that ought to be enacted for the public welfare as well as for many a piece of bad legislation that ought never to be enacted. To prevent legislation or to procure it has thus become many a time a matter of bargain and sale — not by coarse, direct bribery but by the refinements of loans and counsel fees and admission to stock deals.

Who is to blame? First of all the criminal or the cowardly corporations and their robbers or tools. But the people also are to blame — you and I and our neighbors who are too busy to see that incorruptible men are nominated and elected. From the citizen, careless of his duties, to the corporation that yields or tempts, there is blame along the whole line. But, if a distinction is to be made, the corporation is the most blameworthy of all; for, so long as it remains firm and honest and frank, the machinery of corruption cannot begin to turn. But, as soon as it begins to yield to blackmail or begins to buy legislative favors, the supreme damage is done and the worst of political crimes is committed.

The proper restraint and regulation of corporations are necessary. Individual industrial liberty must be secured and guarded. But the corruption of political life is the worst evil that has grown with the growth of corporations; and any manager of any corporation who commits this sin is a public enemy. As we become stronger in civic courage, this will be made plainer by punishment not only in the courts when possible, but also in the clubs, in social life and in commercial circles. And social forces and the power of vigorous commercial opinion must mainly be depended on, for it is almost impossible to convict any man of bribery or of yielding to blackmail.

The building up of a vigorous code of commercial honor is the most direct way to this political reform.

The most important step would be taken if the corporations were to become entirely frank with the public — if they would expose every blackmailer and would openly and directly take the public into their confidence when they want legislation. The public suspects them because they have not been frank. They have used secret agents in dealing with legislative bodies; and the public cannot be blamed for suspecting them.

Such corporations as have been in secret alliance with politicians against the public ought to see that an especially good opportunity has now come for them to make an open alliance with the public against the politicians. For the public is aroused on this subject as it has, perhaps, never before been; and, if the corporations would do all their political and legislative work openly, we should soon have a different class of men in public life and an awakened and enlightened general interest in politics as well as a higher standard of conduct in industrial and commercial life.

MR. HARRIMAN AND THE PUBLIC

MR. E. H. HARRIMAN spent a large part of the summer in Oregon and the other states of the West where his principal railroad interests lie. He accepted many invitations to speak in public on railroad topics, and he found time to talk to the newspapers about big things, however averse he may have been to denying silly rumors or

to talking cheap sensationalism about politics and finance. This change in Mr. Harriman's attitude toward the public within the past two years is significant. For it was his habit, perhaps more than that of any other railroad man of great ability, to deny himself to the public. He was secretive, brusque, secluded. He had no friends among the men who give the news to the world through the newspapers, and he seemed to desire none. All that he wanted from the public was to be let alone. His plan was to conduct his own affairs, or what he pleased to consider his own affairs, without interference or advice from the public.

If one may judge from his latest interview, the change is much deeper than the mere assumption of a more courteous or obliging manner toward the press. One of the most significant things that he said was this:

"The people are appreciating the need of better railroad service, and their representatives should coöperate in bringing it about. . . . Public sentiment is more favorable to railroad management than it was a few years ago. . . . If the Sherman Act had been amended it would have removed many of the animosities and prevented many of the quarrels of the last three years, and we certainly would not have had the business disturbance of last fall."

The Mr. Harriman who asks for the coöperation of the people and their representatives and evidently regrets the animosities of the last three years is not the same Mr. Harriman that we knew only a year ago. He has come to realize the fact, evident to many men a long time ago, that the owner of capital alone cannot sustain a great railroad enterprise unless it enlists the sympathies of the people for whose service the railroad exists. The idea of coöperation between the people, the government and the railroads was not one of the ideas upon which Mr. Harriman built up his railroad kingdom. That he has now accepted this philosophy is a good augury both for him and for the country he serves.

With the opinion that any amendment to the Sherman Act would have prevented last year's panic, it is not necessary to agree. To many minds, the causes of the "disturbance" lay much deeper than Mr. Harriman seems to think. Few thoughtful men will agree with him that, if railroad agreements had been allowed, we should have escaped a panic. Yet most thinking men share his opinion that the Sherman Law needs amendment.

But the point of most importance is that Mr. Harriman now discusses such subjects freely, shares his thought with the public, gives the public the benefit of his conclusions and is disposed to regard it as a party to his great public service. If he does this, all the other great railroad men may follow suit.

BANKS CLOSER TO THE PEOPLE

PRESIDENT WOODROW WILSON of Princeton University drove home a strong truth, in an address to the American Bankers' Association at Denver. He said:

"The banks are in fact singularly remote from the laborer and the body of the people. They are particularly remote from the farmer and the small trader of our extensive countrysides. . . . It is the duty of the banker, as it is the duty of men of every other class, to see to it that there be in his calling no class spirit, no feeling of antagonism to the people, to plain men whom the bankers to their great loss and detriment do not know.

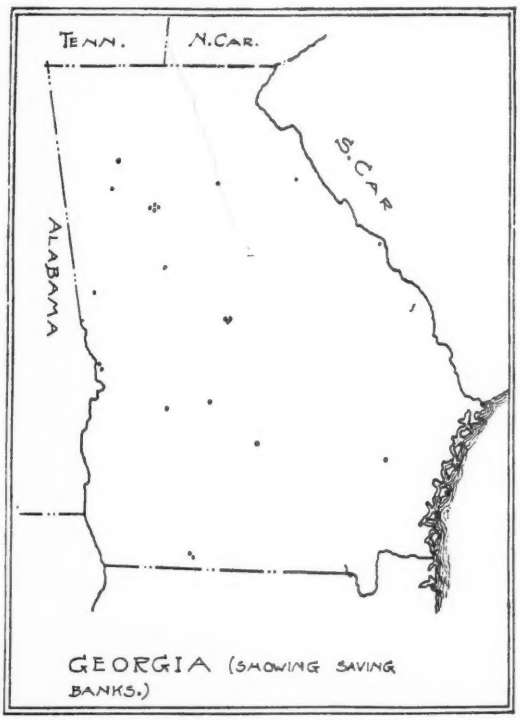
"How capital is to draw near to the people and serve them at once obviously and safely is the question, the great and now pressing question, which it is the particular duty of the banker to answer. No one else can answer it so intelligently; and, if he does not answer it, others will, it may be to his detriment and to the general embarrassment of the country. The occasion and the responsibility are yours."

In other words — "You must do your duty by the people, or some financial quack will persuade them that the whole structure of the banking world is false, and will foist upon them some new system. In your own interest and in the interest of the country, you must get close to the people."

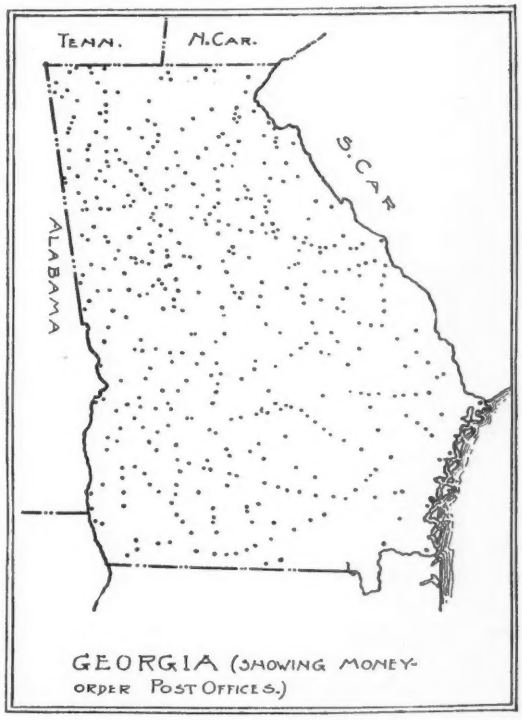
To be specific, the big city banks must learn, once for all, that the proper function of a bank that takes mercantile deposits is not to loan money on Wall Street collaterals, nor to turn its back upon mercantile discounts. Many of these big banks have only half learned this lesson; and this fact, more, perhaps, than any other, lends a color of reasonableness to the growing demands for closer government regulation, and tighter legal restriction by the several states.

So much for banking proper. But to give the people — especially in the small towns — machinery for their first start toward the use of banks, more savings-banks are necessary —

so many more that enough can be supplied only by the Government. Look at the two accompanying maps of Georgia, which has been selected as an example of a rural state. One map shows the number of savings-banks now in existence; and the other the number of money-order post offices, which would all become government savings-banks under the measure proposed by the Post-office Department. Country people — the mass of the people — cannot borrow money or wisely use banks till they begin to save money.



THE SAVINGS-BANKS IN GEORGIA
At present only a few of the people have facilities for depositing their small savings accounts



THE MONEY-ORDER POST OFFICES IN GEORGIA
Which will be postal savings-banks if the Administration's plan is approved by Congress

Every encouragement to save money is a discouragement to financial quackery.

THE ONE CONTROLLING THOUGHT OF THE PEOPLE

BUT "getting the banks closer to the people" means more than better banking practice and more than an increase in the number of savings-banks. A "bank," in the vocabulary of the multitude means "the money-power"; and the money-power means financial proximity to the trusts; and financial proximity to the trusts means power to shape legislation and the administration of the laws so as to give those who control the great aggregations of capital unfair advantages over the unorganized mass of poorer men.

This is the one thought that is of more importance in the minds of a majority of the American people to-day than any other. It shapes their political action and their social theories and it colors their whole philosophy of life.

To an extent it is true — not to the extent that vast numbers of persons believe it to be true. And every man who helps by frankness and by fair dealing to make this suspicion less groundless and less true does as good service to the public as a man can do in this generation.

THE SAVINGS-BANKS STRONG IN A BAD YEAR

IN THE Government report on savings-banks in the year that ended June 30, 1908, it is pleasant to note that there are now thirty-eight more savings-banks in the country than there were last year, and that the number of depositors

increased 117,037 between June 1907 and June 1908. There was, therefore, even in that "bad" year a growth of the demand for savings facilities.

The total amount of the deposits decreased during the year nearly $30,000,000; the average deposit declined from $429.64 to $420.47; and the increase in the number of depositors was less than one-quarter of the increase in the preceding year. Thus during 1907–8, savings were called upon by some persons to keep the wolf from the door, and the banks were obliged in many thousands of cases to pay out accumulated funds to men out of work.

That the banks in the great cities weathered the storm without greater losses of deposits is the strongest endorsement of the savings-bank system. The principal losers were the banks of New York, the Pacific Coast, and Illinois, the former showing a decrease of about $16,000,000, and Illinois about $13,000,000. In Illinois, however, the large part of the savings is held by commercial banks, not by true savings-banks as the term is known in the East. The decrease of nearly 10 per cent. is, therefore, probably not so significant.

The New England states, without exception, show good gains. So do the Eastern states, with the exception of New York and New Jersey. The brunt of the loss fell on the banks of the Middle West and the Pacific Coast. It is in these states that the savings banks have attained least dignity, and have less hold upon the confidence of the people.

If any man at this late day needs to be persuaded that a sound savings-bank system is of inestimable importance, he may study the fact that not a single Eastern savings-bank failed in the panic year, and that the aggregate savings deposits of the New England and Eastern states increased during that year by $14,000,000 in spite of the number of men out of work.

"SURE" AND "DOUBTFUL" STATES IN THE ELECTION

THERE are now 483 votes in the Electoral College. Out of the 46 states, 24 have changed their politics at least once since 1892.

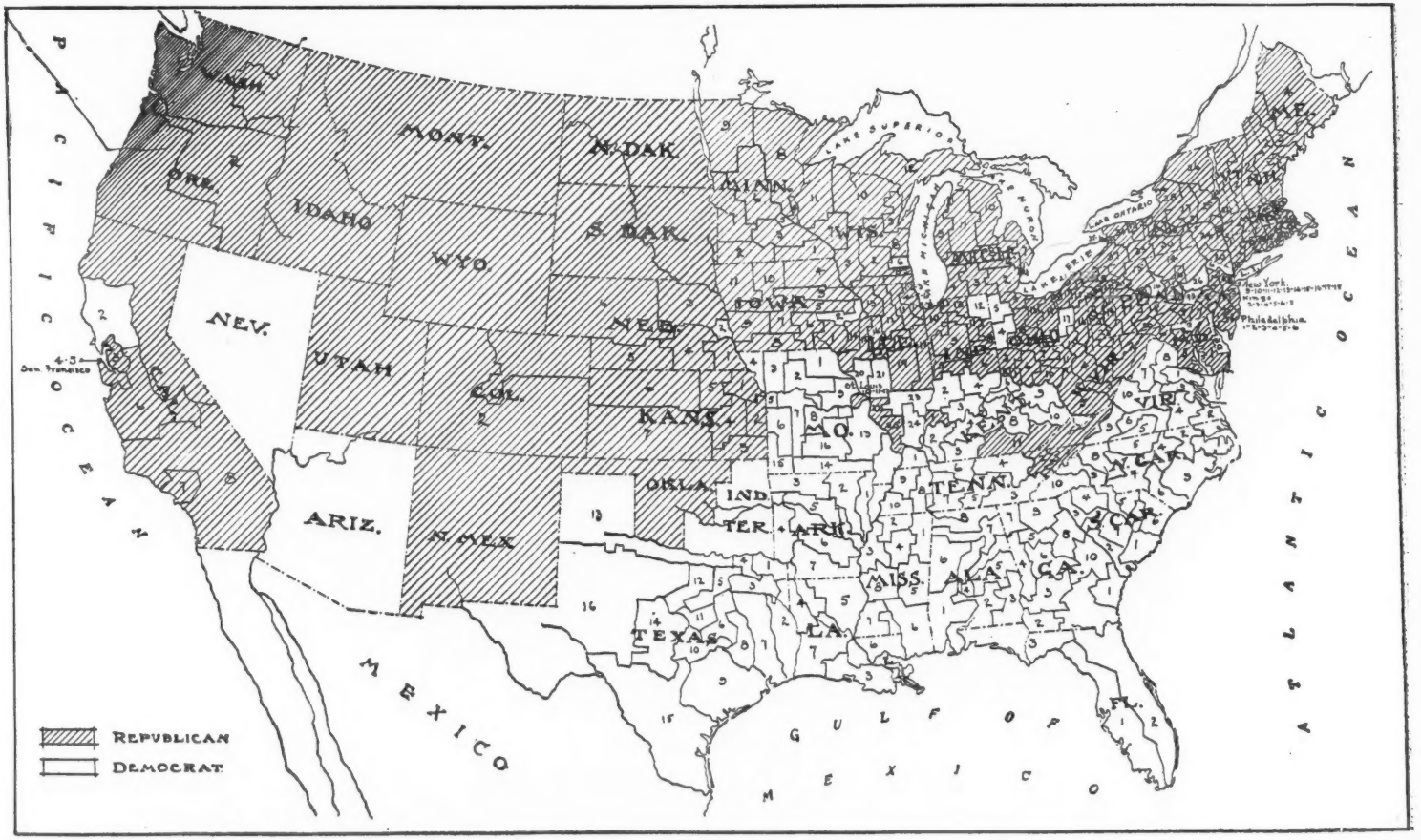
West Virginia has Republican factional quarrels that may turn it to Mr. Bryan, although it turned Republican because of him. Suppose that this happens and that Mr. Bryan wins back all the states which he carried in 1896 but which went to Mr. McKinley in 1900; the electoral vote would then still be 263 Republican, 220 Democratic. If in addition to this he should carry New York or Ohio he would win the election. New Jersey, with California, Indiana, Michigan, Wisconsin, Minnesota, or Iowa, with the states that he carried in 1896 would elect him. These combinations seem to exhaust the Bryan possibilities.

The groups of "sure" states and of various kinds of "doubtful" states follow:

Republican Column		Democratic Column	
Iowa	13	Alabama	11
Maine	6	Arkansas	9
Massachusetts	16	Florida	5
Minnesota	11	Georgia	13
New Hampshire	4	Louisiana	9
Ohio	23	Maryland	8
Oregon	4	Mississippi	10
Pennsylvania	34	North Carolina	12
Rhode Island	4	South Carolina	9
Vermont	4	Tennessee	12
	119	Texas	18
		Virginia	12
			128
Republican except in 1892		*Democratic except once*	
California	10	Kentucky	13
Illinois	27	Missouri	18
Michigan	14		31
Wisconsin	13		
	64		
Safely Republican		*Probably Democratic*	
North Dakota	4	Oklahoma	7
	187		166
Voted for Bryan in 1898, but for McKinley in 1900		*Voted for Bryan in 1896 and 1900; Roosevelt in 1904*	
South Dakota	4	Nevada	3
Utah	3	Colorado	5
Washington	5	Montana	3
Wyoming	3	Idaho	3
Kansas	10		14
Nebraska	8		
	33		
Republican since 1892			
Delaware	3		
West Virginia	7		
	10		
Democratic in 1892, and Republican since			
New York	39		
New Jersey	12		
Indiana	15		
Connecticut	7		
	73		
	303		180

(Ohio divided its electoral vote in 1892, giving 1 vote to Cleveland and 22 to Harrison. Kentucky, California, Michigan, and North Dakota all cast divided votes in 1892.)

The classification of the states indicates clearly that there is now no one state that can



A MAP OF CONGRESSIONAL DISTRICTS

Showing the Democratic and Republican Districts in the present Congress: the white being Democratic and the shaded Republican except that eleven districts in New York City, two each in Buffalo and Chicago, and seven in Pennsylvania, which are too small to show on the map are Democratic. To show relative distribution correctly one-fourth of New York and nearly one-fourth of Pennsylvania should be white. See "The Congressional Election" on the following page

be called "pivotal." No one state may turn the election, as New York could from 1876 till 1892, when the balance between the surely Republican and the surely Democratic states was so nearly even that New York's large electoral vote could more than span the difference.

THE CONGRESSIONAL ELECTION

THE Congressional election is as important as the Presidential election, especially at a time when a change in the Speaker's chair is necessary for anything like enlightened legislation. The Congressional election, too, will show to what extent the people have concerned themselves about tariff reduction.

The map on page 10859 shows the Congressional districts that are now Democratic and those that are Republican. But a hasty glance at it may make an impression somewhat unfair to the Democrats; for most of the Democratic districts in the Northern states do not appear prominently on a map. New York, for instance, has 11 Democrats and 26 Republicans in Congress; New Jersey, 4 Democrats and 6 Republicans; Pennsylvania, 7 Democrats and 25 Republicans; Massachusetts, 3 Democrats and 11 Republicans; Ohio, 5 Democrats and 16 Republicans.

In the present Congress the Republicans have a majority of 58.

THE COMMISSION ON COUNTRY LIFE

THE Commission on Country Life, appointed by the President, of which Dean Bailey, of the Agricultural College of New York, is at the head, has sent out a series of inquiries to 300,000 or more residents of the country and persons who have made a special study of rural problems.

(1) Whether the conditions with regard to each subject in the neighborhood where the correspondent lives is satisfactory or not.

(2) Why? and

(3) What suggestions the correspondent has to make?

The general subjects taken up in these queries are:

HOME-MAKING — The choice and preparation of food; wells and water and waste; house construction; conveniences and appliances; help.

EDUCATION — Rural schools; agricultural and household subjects; preparation of teachers for country life; farmers' institutes; colleges; extension work.

BUYING AND SELLING — Coöperation in dairying, in poultry, in raising fruit, marketing, etc.; middlemen, buying-associations.

COMMUNICATION — Roads; trolley-lines, telephones, postal service.

ORGANIZATIONS — Farmers' clubs; granges; experiment club; farmers' unions, etc.; women's organizations.

LAND — Tenancy; form of rental.

FARM LABOR — The supply of; housing; wages, board.

FINANCE — Savings-banks; rural credit societies; insurance.

PUBLIC HEALTH — The regulation of; water supplies; the prevention of disease.

SOCIAL LIFE — Public gatherings; festival days, literary clubs; reading clubs; church, schoolhouse, and other social centres.

Everybody is asked, moreover, to make any general suggestions that he will. These inquiries have been sent also to the whole press of the United States.

There is no such thing possible as an exhaustive report on all the practical kinds of organization in country life over so wide an area as the United States, but the main purpose of the commission is not to try to make an exhaustive investigation. Its main purpose is rather clearly to explain plans that have worked successfully in some communities and that, therefore, may be expected to work successfully in other communities — in a word, to emphasize the necessity of organizing rural life so as to give every section of the country the most suggestive experience of the other sections.

The public mind will concentrate itself seriously on only one subject at a time. As soon as the election is passed and the campaign is forgotten, the work of this commission, which concerns a subject much more permanent and very much more important than any partisan question, and has no more to do with politics than it has to do with the moon, may take a firm hold on public attention. Then, if the public opinion of the whole United States do take hold on it in this fashion, it will result in a forward movement of the most far-reaching and important sort.

The truth is, the organization of country life is the subject that, in one form or other, is now engaging the most serious attention of all social philosophers — of all men, in fact, who profoundly believe in the right

organization of human society in general. In a country like ours — of great area and of rich productive land — life in cities and towns is not the normal life for any large proportion of the people. Nor is it the best or most wholesome life. Its attractions for most men are either socially or economically unsound attractions. But town life already has organization, and it is pleasant or profitable accordingly. For organization is the greatest invention of modern times and the greatest engine of all progress. The purpose of this commission is to emphasize this large fact and to show, as far as it can, how rapidly organization is going on in our country and, if possible, how it may be naturally hastened.

Early in November, the commission will begin a series of hearings, beginning at Washington, going through the Southern states to California and back through the central and northern part of the country, returning to Washington to meet with the National Conservation Commission on December 8th. Meetings will also be held in New England and other parts of the Northeastern states; and the hearings will close at the National Corn Exposition in Omaha in the middle of December. The object in holding these hearings is to enable the commission to secure opinions, information, and suggestions in respect to rural life in the entire country. The date of the meetings will be scheduled days in advance so that wide publicity may be given through the press of the various regions; and the rural organizations will be notified and invited to send delegates. All persons who are interested in country life, whether actual farmers or not, and who have practical suggestions to offer, will be welcomed at these meetings. It is especially desired to secure the opinions of those who are actually working the land; but the commission also desires the opinions of persons who are doing business in the open country, rural teachers and pastors, chambers of commerce, transportation men, editors, and any others who are studying the question.

Some of the larger questions will receive particular attention from different members of the commission, although it will be impossible in the brief time at its disposal to make any thoroughgoing investigation in any one of them. Ten general subjects have been assigned to members of the commission for particular study, and a very large special correspondence will be engaged in by the commission and its members.

The general purpose is to arrive at an understanding of conditions and of public opinion with regard to American country life as a basis for a report and recommendation to the President. To this end the commission invites the coöperation of every citizen.

GOOD WORK AT PANAMA

THE digging of the Panama Canal is going ahead faster even than enthusiasts for the enterprise anticipated. It is now promised that the canal will be open on New Year's 1915, and there are some who believe that it will be finished before that date. The sooner it is open the sooner the efficiency of every ship in our navy will be doubled; for then the full strength of the fleets will be available for use on both our coasts and on both oceans.

But there are more or less patriotic reasons also for pride in the rapidity of this work. It is proof of the skill of American engineers and of American management of great undertakings. Perhaps it would be unfair, considering the advances in sanitary engineering since De Lesseps's time, to compare our work with the French. But to-day yellow fever has been driven from the Isthmus, where five years ago men worked in fear of their lives; the pest-breeding filth of the nearby towns in Panama and the early labor camps has been thoroughly cleaned away; comfortable homes and well organized social communities have been created for the workers, with schools, churches, and club houses; and this year more than two and a third million cubic yards of rock and earth were excavated during the months of the dry season. Imagine a great hole a mile square and more than thirty feet deep! This represents the digging of the past year. Hundreds of steam shovels, thousands of cars, and dozens of barges are in constant use. Every month 405 tons of dynamite are used in blasting. The army of men at work averages near thirty thousand.

The whole report of the commission that recently investigated the work tells of efficient management of an immense undertaking. And this management is of our regular army engineers. These men have brought to the point of efficiency a work abandoned by some of the best known engineers of our own country;

and this Government work is free even from the suspicion of "graft."

STILL A LITTLE BUSINESS HESITANCY

WHILE the great manufacturing industries and merchants report that conditions are improving, there is still considerable hesitation in business circles, especially in the Eastern states. Conservatism holds down the volume of buying in the wholesale centres, and prompts the resumption of factories on a small scale rather than at full capacity. Many factories open, work off their accumulated orders, then close down again. In normal times, the owner of a plant prefers to run it steadily, even at a loss during a part of the time. Men do not like to have their workmen scatter, even though holding them together means a net loss for weeks or months. But now with labor plentiful, orders light, and working capital often slender, men prefe to shut down for a month or so at a time rather than run their plants at a temporary loss. In other words, the owners of factories are more conservative or cautious than they have been before for many years. They are not quite sure that business activity will continue brisk. How much of this hesitancy is due to the campaign one cannot guess until the election. Doubtless it plays a part; but the general opinion seems to be that it is a secondary part. The real cause of hesitancy is that the sudden halt of last fall and winter frightened men of business a little more than they care to admit in public; but nobody doubts, or can find reason to doubt, the continued return of confidence and of activity till fully normal conditions are restored.

DOES IT COST LESS TO LIVE?

WHEN the panic came last year, economists made haste to point out, as one mitigating circumstance, that one of its first effects would be to reduce the cost of living. Arguing from experience as well as from scientific theory, they demonstrated that food, clothing, and all other such items would come down in price. But the prices of commodities have shown a remarkable stability instead of a rapid decline to correspond to the rapid cessation of revenue-producing labor in the country.

If one takes as a criterion the "average" compiled by *Bradstreet's*, it appears that the prices of commodities declined 14 per cent. between September 1, 1907 and September 1, 1908. This looks like a material reduction, and justifies, to a certain extent, the predictions of economists. On closer analysis, however, it appears that the actual household living expenses have not declined in anything like this ratio. The "average" is based on the prices of a great many items, iron, copper, tin, and many other things that little concern the keeper of the house, as well as on flour, fruits, and meat. Turning to the itemized prices, flour shows an advance of nearly 10 per cent., beef an advance of 25 per cent., corn an advance of more than 30 per cent. Provisions show practically no change for the year. Thus the chief items in household bills have not been decreased as a result of slackened activity in the business world. The man with a greatly lessened earning power still has quite as large bills to pay for his living. The necessary influence is that the average man in the United States is poorer to-day than he was a year ago.

In clothing, however, he can get bargains. The average prices of textiles show a decline of about 20 per cent. A clothing company, which has six large stores about New York, made in the six months that ended in August 25 per cent. less than the profits of the same period the year before. One wholesale clothing house of wide commercial affiliations, instead of a profit of nearly half a million dollars, as on the year before, had a net loss of about $7,000. In spite of lower prices, the volume of business declined.

In theory, the cost of living has been reduced. In fact, it costs as much to live to-day as it did a year ago. Nor is there any sign of a reduction. Your butcher and your grocer will hold out no hope. The dry weather of the early fall, in fact, carried a threat. Unless there is an extraordinary and quick trade revival, bringing back work for the people who are yet out of work, the winter promises to be a hard one, with smaller average revenues than for many years, and with prices of necessities as high as ever, and in some important items higher than ever.

THE LESSON OF THE FOREST FIRES

DURING the long drought last summer, forest fires burned for 200 miles along the Mesaba range and in the copper regions of Minnesota. Camps, villages, and towns

fought for existence, some of them unsuccessfully. Chisholm, for example, a town of 7,000, was completely destroyed. There were fires in Wisconsin, too, and the smoke from those in northern Michigan darkened the country far eastward. In Maine, in upper New York, in Pennsylvania, in California, and in Ontario and Vancouver in Canada also, the woods were on fire. This is the largest burning area that we have had for many years, but every year there are fires in the forests, which, if a long drought came, would grow to these same proportions.

Besides the destruction of towns and the loss of life (there have been nearly two thousand people lost in our forest fires in the last thirty years), the timber supply is, of course, menaced; and, without fires, the present rate of consumption will practically exhaust the supply within a generation or two.

A large part of the loss by fire can be prevented by proper action by the states. If it is a duty of the state to preserve the public health, it surely is a duty to preserve public property of this kind; for, although the lumber may be in private ownership, it is important enough to the general welfare for its care to be a public charge; and a fire respects no lines of ownership.

Flood and fire have both taken heavy toll this year, and enforced the lesson of the need of community vigilance, whether the community be town, county, state or the Federal Government.

Fortunately, some of the Eastern states are beginning to realize that, while other regions may, perhaps, supply them with lumber, no other forests than their own can preserve their soil and water, or affect the climate, or provide accessible playgrounds for their people. For example, New Jersey has nearly two hundred township and district wardens, and more than seventy-five railroad wardens, of whose work Mr. Alfred Gaskill, the State Forester, says:

> "New Jersey claims to have the most advanced forest fire service of all the states in the Union, mainly because it is organized to look after all woodland, irrespective of ownership. Fires still burn; and during the past season they have been pretty bad, yet the organization is doing effective work, and the total loss this year is not likely to be more than a fraction of what it would have been without the fire service."

The following figures show the increasing efficiency of this work:

Summary of Forest Fires, from N. J. State Records

YEAR.	Number of Fires.	Acres Burned.	Acres per Fire.	Estimated Damage.	Damage per Fire.	Causes.					
						Locomotives.	Brush Burning.	Smokers.	Incendiary.	Miscellaneous.	Unknown
1872	...	100,000	.. ..	$1,000,000	.. ...	..	..	..	..	..	..
1880	54	71,074	1,316	252,240	$4,671	28	7	..	7	12	..
1885	...	128,000	.. ..	1,128,000	.... .	..	..	..	..	..	..
1895	49	66,120	1,349	600,000	12,245	24	6	4	4	5	6
1902	65	98,850	1,520	169,323	2,605	21	22	4	2	12	4
1907	167	11,525	69	11,647	70	60	7	1	10	19	70

Pennsylvania has an active commissioner of forestry, who supervises the quarter of a million acres of state forest reserves. New York has forest reserves, and a large nursery to supply young trees for reforesting, and 132 fire wardens. But, in spite of these, there are destructive fires in the Adirondacks, some inevitable, and others that a better supported fire service would subdue. Private owners, too, such as the paper mill companies in New England, have fire wardens, which help the state service.

All these facts show that we are beginning to recognize the difference between use and abuse; but there is still a great deal of popular education to be done before the forests will be out of danger of total destruction.

POOR RICHARD'S £1,000 A CENTURY AFTER

THE Franklin Union, an industrial school principally for men and women who are already at work, was lately opened in Boston, in a building paid for by the principal and the interest of the £1,000 which Benjamin Franklin left to his native city 118 years ago. The Franklin Union will be like the Cooper Union in New York, where every year more than two thousand men and women attend courses, and where in 1907, 578,582 people used the library.

After a hundred years, the amount of the Franklin Fund available for the city's use was not quite a third of a million dollars. Dr. Henry S. Pritchett, then chairman of the Board of Managers, interested Mr. Andrew Carnegie in it, and he generously offered to duplicate the amount of the fund as it stood

in September, 1904: $408,000. This gift is to be used as an endowment for a school for the industrial training of men and women — the Franklin Fund to secure the building and Mr. Carnegie's gift to supply an income for expenses.

From the beginning, emphasis will be laid on industrial training, and every assistance will be given the man who already has some knowledge of a trade and who desires to improve himself. Practical men will be the instructors — who have had technical education and extensive experience. Students will not be expected to listen to long lectures on the theory of their trades. The plumber's assistant who wishes to learn all the branches of plumbing will be instructed in actual work.

The clerk who wishes to become a chauffeur will master the intricacies of the motor car, learning by doing.

This adds one more school of the most practical kind to the few that we had to supply this gap in our educational and industrial life, which, since the decay of apprenticeships, has small provision for supplying the constant need of trained workmen. It is particularly fitting that the money bequeathed by Benjamin Franklin should be used in so wise and practical a way in helping men to help themselves. Such a use would please the most practical and thrifty of philosophers.

THE AIRSHIP ACCIDENTS

IT IS remarkable that the first serious catastrophe in mechanical flight occurred in a trial of the machine that was the most nearly perfect, and that the same thing happened with the best airship yet built. Both the Zeppelin airship and the Wright aëroplane were (with a certain reservation in the case of airships), the only flying machines upon which their owners had ever dared to fly far enough to get into serious trouble. The Wright aëroplane was the only one that ever attempted anything more than extremely guarded flight.

The long flights of the European imitations of the Wright flyers have all been made under easy exhibition conditions: the machines were capable of flying indefinitely while not a wind stirred and the gasolene motors kept running. And the flying was extremely simple, round and round a track. But Mr. Wilbur Wright and his brother have made sharp turns, high flights, and bird-like circles and both could have done the same in winds. Mr. Orville Wright flew only in calms at Fort Myer for business reasons: he was under contract to deliver a machine to cost the Government $25,000; and it was business prudence (and the Messrs. Wright, although inventors, are hard-headed men) to choose the best conditions. As it was, the evolutions over the parade-ground, where the big aëroplane went at the rate of an express train seventy-five feet above the ground, were bold, compared with any ever made by another machine.

It was in this real flight — the only kind of flight that would ever be of use in war, in work, or in sport — that the fatal accident occurred, in which Lieutenant T. E. Selfridge, of the United States Army, was killed, and Mr. Orville Wright was seriously injured. This unforeseen trouble does not point to any defect of plan in the aëroplane. It was an accident that may never happen to another machine built on the same model as the Fort Myer aëroplane. In fact, the brothers Wright had in mind long before this fatal accident an improvement of their machine that would have made this accident impossible.

Of the Zeppelin airship the same thing can be said. It was the success of the machine that made the catastrophe possible. But there is nothing about the accident to either of these two aircraft, different in everything except that they are both wonderful mechanical achievements and that they both "arrived" at the same time, to discourage anybody who wishes to see aërial navigation. More Zeppelin airships are already under construction. Materials were in course of manufacture before the destruction of Zeppelin IV. And the Navy Department at Washington, in spite of the accident at Fort Myer, has prepared specifications for a flying-machine especially designed for use at sea.

It is reported from Europe that a prominent French promoter has bought from the Wrights for $100,000 the right to manufacture their aëroplanes in France and that fifty machines have already been ordered. Meanwhile Mr. Wilbur Wright has won prizes for aëroplane flight in Europe.

LIEUTENANT SELFRIDGE

WHEN the fall of the Wright aëroplane at Fort Myer, Va., caused the death of Lieutenant Thomas E. Selfridge, the United States Army lost a young officer of

more than usual abilities — a fine, manly fellow who was a soldier all the way through.

He was graduated with honors at West Point in 1903. He was assigned to the Artillery and distinguished himself. When the War Department recognized the seriousness of the coming of motor-balloons and aëroplanes as fighting-machines, he was already interested and upon his request was detailed to the Aëronautical Division in the Signal Corps and directed to take up the study of aërial dynamics and the construction of machines. Last winter he was ordered to Hammondsport, N. Y., where Dr. Alexander Graham Bell and others were working on the tetrahedral type of aëroplane. It was Selfridge who interested them in experimenting with all good new ideas for mechanical flight. The Aërial Experiment Association was formed to do this.

The young soldier carried out his orders. Anybody who had business at the shops where the association had its headquarters was sure to see him working away at his desk, in corduroys and flannel shirt, getting from aëronautical journals in many languages or from miscellaneous scientific publications, may be from manuscript reports and letters, the abstruse formulas that meant exactness of knowledge. The library that he gathered there astonished one who thought that people were just beginning to think about airships. Or he would be about the shops, or taking part in some experiment. It was difficult to get him to talk much, but he had a kindly smile. There was a reserve about him that was apparently half shyness, but whenever he wished to say anything there was not the least hesitation. Dignified, sure of what he said, but unassuming and ready to be of help, there was something that was exceedingly attractive and lovable about the young soldier, although he never went out of his way to make himself popular.

Dr. Bell says that he was the most widely informed man on successful navigation of the air in America. There is reason to believe this is true. We have some specialists who are unrivaled in their knowledge about particular things in aërial science, but Lieutenant Selfridge studied everything and he took pains to keep a broad and unbiased mind about different kinds of machines. Although he helped build an aëroplane and made trials of flight in that machine, he argued that the Zeppelin airship was probably a more efficient war-engine, even before Zeppelin made his most famous flight. Not a thing that had information in it was neglected. Only a few days before his death he spoke of getting good material out of a story of war in the air written by a well-known novelist. He said that this novelist was getting his facts from some expert and that this was one way of getting the expert's ideas.

Selfridge studied the science, but he was just as interested in practical flying and in finding out every possible way of using the machines for war purposes. He had been hoping for months to make flights in the Wright aëroplane. When he received his orders to go he went gladly. When the accident happened he acted as a soldier. The spot where he fell has been marked, and a monument may be erected there. It is to be hoped that the stone will tell, simply, just what kind of man this young officer of twenty-six years was, who lost his life obeying orders with enthusiasm, because he was, in his quiet, gentle way, an inspiration to all who knew him.

THE GLOOM OF USELESS SMOKE

MANY public-spirited men are working to lessen the smoke nuisance in cities; for much of the smoke is unnecessary and means, besides, a waste of coal. The smoke cloud that overhangs London weighs 300 tons, according to Professor Chandler Roberts. Fifty tons of this weight is in solid carbon, finely divided, and 250 tons in carbonic acid gas and other chemical compounds. Three tons of soot have been deposited on the glass of the National Botanical Gardens. Priceless pictures in the British Museum and National Gallery are suffering slow destruction.

"You can draw plans for the most beautiful park in the world but you cannot have grass and trees while you have smoke," said Mr. Frederick Law Olmstead, Jr., a few years ago. The Park Commissioner of St. Louis reports that more than 400 trees were killed in Forest Park in 1907. The city of New York has just spent $25,000 in cleaning the grime from its Soldiers and Sailors' Monument, erected less than ten years ago. Eleven big storekeepers in Cleveland, O., estimate that a clear loss of 10 per cent. must be figured on all white goods sold by them, and estimate this loss, which their customers pay, of course, in increased prices, at $25,000 a year. Dr. W. A. Evans, Chicago's

Health Commissioner, says that diseases due to smoke and bad air are increasing alarmingly; and other physicians say that the smoky atmosphere shows its influence in nervous troubles and in throat and lung diseases.

This is only part of the indictment of smoke made by officers of the American Civic Association, who quote also the Cleveland Chamber of Commerce as saying, "The presence of coal smoke in large quantities constitutes perhaps the greatest hindrance to the highest development of civic beauty and refinement," and the Civic League of St. Louis declares, "The time has come when American cities must be made cleaner and more attractive; smoke is one of the dirt producers, and is a constant obstruction to any effort to beautify a city."

The existence of all this harm and dirt of smoke is declared by the men who are making a world-wide crusade against it to be inexcusable. They find comfort in the growing electrification of railroads. They see the ultimate extinction of smoke in cities by the beginning of a movement to build electric power and gas producer plants at the coal mines whence electricity and gas will be sent by wire and pipe to distant centres of population. The United States Geological Survey is working at the problem in finding how to use coal without producing smoke and they believe that this can now be done. The suction gas engine, it is said, gives more power, in small units, than steam engines, and produces no smoke.

But even without these almost revolutionary changes in power-producing in the industrial world, which must take years to come, the anti-smoke crusaders say that railroads and factories can even now greatly lessen the smoke nuisance and save money at the same time by insisting upon intelligent firing by their employees. Mr. D. T. Randall, of the Government service, says that with a little training of engineers and stokers half the boilers in the United States that use coal could save 10 per cent. of the present consumption and another fourth of them could save 5 per cent. and all would help lessen the pall of smoke over the cities. Professor Roberts believes that London, in waste of coal in domestic fires, in the cartage of that wasted coal and of the surplus ashes, and in the damage of property for the unnecessary smoke, spends $23,000,000 a year that could be saved. An electric company in Chicago burns 2,000 tons of soft coal a day without a sign of smoke from its stacks.

And improvement is noted already. London has only a fifth as much smoke it had eight years ago. New York has gained immensely by electrifying its elevated railroads. Chicago is doing well. Only Pittsburgh appears yet to be hopeless.

FORCING FOREIGN CAPITAL INTO ENGLISH FACTORIES

A NUMBER of American manufacturing companies are buying property in England and establishing factories there. Instead of continuing to export their wares to England as in former years they now manufacture them there. Sir Alfred Jones, president of the Liverpool Chamber of Commerce, estimates that more than $125,000,000 will soon be invested in England by foreign manufacturers and that their work will have an important bearing upon the problem of work for the unemployed of that country.

All this is the result of a law passed a year ago by the British Parliament, providing that foreign patents taken out in England may be revoked on the petition of any man, if the holders of the patents, four years after they have been granted, are not using them in British factories. In other words, a German or an American patent will not protect the holder in the manufacture of the patented article in Germany or America and its export to England. He must also have his factory in England.

For the past few years, more than two thousand American patents per annum have been taken out in England. Many of them, of course, cover inventions that will never be manufactured; but many of them cover manufactures of considerable commercial importance. The bearing of the new law is, therefore, of immense importance, both to the British public and to the American producer. For instance, it has often been pointed out that the American manufacturer has used Britain, with its open markets, as a sort of "dumping ground" for his surplus, selling his American goods there sometimes cheaper than he sold them at home. It is not made clear that the new law will stop this, for a small British factory might be established which would not by any means supply the British demand, leaving a good margin still to be filled by export from this country. But it is clear that the operation of the new law will, in part at least, diminish the opportunity for the export of patented articles.

According to British authorities, many German and American companies, rather than build their own factories in England, are making contracts with British houses now in existence to manufacture under the patents. This method serves the same end. It cuts down by so much the export of the articles from our ports, and increases the work to be done by British hands. The law seems well adapted to fulfil its purpose, however little adapted it may be to please the German and the American manufacturer.

A UNIQUE SCHOOL FOR GRAND OPERA

THERE is in Philadelphia an organization that Mr. Oscar Hammerstein has called "the greatest school for grand opera in the world." It is the Philadelphia Operatic Society, which was organized two years and a half ago; and one of its indirect results is a new opera house. This organization of singers and dancers is composed entirely of amateurs; and every member has the same voice as every other one in its management. The dues are light, for the large receipts of the performances defray the expenses. The chorus has two hundred voices and there are thirty-two members of the ballet. Within two years it has given five performances, two of *Faust*, one of *Martha*, and two of *Aida*. The society will sing *The Huguenots* on November 5th and 10th.

The society has given so much help to managers of grand opera that they lend paraphernalia and wardrobes to encourage the work. In return, Mr. Hammerstein has drawn upon the organization this season for twenty members of his chorus, and, if his rehearsals had been conducted in Philadelphia, many more members of the society would have been employed by him. The society was started by Mr. John Curtis, who turned a deaf ear to all predictions of failure based upon previous attempts. He has served as president and manager without pay, as have all others whose services have been required. Probably this is one of the secrets of the society's success — the love for the work which every member feels. All the members live in Philadelphia and the influence of the society extends to many families and affects a wide circle of acquaintances of the members. Not only is the influence beneficial to the public, but a number of soloists are gaining a proficiency that may bring them renown. Most of all, the whole community acquires an appreciation of grand opera to a degree that could not possibly be generated in any other way we know.

THE MYSTERY OF THE GREAT BRAZILIAN BATTLESHIPS

THE most powerful battleship in the world was launched from a London shipyard early in the fall. She is the *Minas Geraes*, built for the Brazilian Government. Two more battleships of the same size and power, the *Rio Janeiro* and the *Sao Paulo*, will soon be launched at London. Each will cost more than $9,000,000, and has twelve 12-inch guns, which can all be brought to bear in a single broadside. Each gun weighs sixty-seven tons and each discharges a projectile weighing 1,250 pounds, which will pierce twenty-five inches of iron at a distance of about two miles. The weight of a single broadside would be more than seven tons. In addition, these vessels have an armament of twenty 4.7-inch guns, and the guns are protected by nine inches of steel. The armor protection of the hull consists of nine inches of steel amidships tapering to six inches at either end.

The question that is puzzling diplomats the world over is why Brazil should want ferocious leviathans of such size and armament and speed as to place them ten or fifteen years in advance of the warships ordered or projected by any other nation except Great Britain. And even the English Dreadnoughts are as cruisers compared to the South American boats.

The largest and most powerful vessel now on the British naval list is the *St. Vincent*, launched on the same day as the *Minas Geraes*. She will carry ten 12-inch guns and a secondary battery of 4-inch guns. She is 500 feet long and displaces 19,250 tons. England's reasons for building the Dreadnoughts and the *St. Vincent* and other projected boats of this type are well defined — the maintenance of sea power — and are understood throughout the world. But why the Brazilian boats? Although Brazil has denied that these are meant for England or for Japan, naval men of all nations suspect that they are meant for some government other than Brazil's. In the event of war, the government which would first be able to secure these vessels (which cost about $20,000,000) would immediately place the odds of naval supremacy in its favor.

England, no matter how many Dreadnoughts she has, would be compelled to buy them to keep them from some lesser power. They bring a new question into international politics. They may be leaders of a great fleet which minor governments are said to be preparing to build; or, to put it more accurately, to stand sponsors for. Some Machiavellian hand may be at work in this new game of international politics and the British Admiralty is suspected. But every statesman and naval student may make his own guess.

LITTLE STORIES OF MEN AT WORK

WHEN a conductor of a Lackawanna train walked in from the Hoboken track-shed to make his report at the office, he was stopped by a tall, iron-gray man, who held out his hand with a greeting.

"Good morning, Parsons. How's the rheumatism?"

"Better, sir;" said the conductor, "but I guess it will get me again in December. It always does. How are you?"

"Pretty well — and we're keeping the railroad running all right. Glad to see you are cutting down the 'lates' since the signals are working better. Keep it up. And don't forget to take care of yourself — good bye."

As he went on to the ferry, he stopped four times in fifty yards to speak to different men — a starter, a station-sweeper, another conductor, and a man in plain clothes. What he said probably did not amount to much, but it seemed to mean something to the men.

This was Mr. W. H. Truesdale, the president of the Lackawanna Railroad Company. The men to whom he talked were men of the railroad staff, upon whose aggregate performances rests the reputation of a great and successful road, built up to its present high position almost entirely under his administration. How much of its success is due to just this spirit shown by his greetings to his men, no one can say accurately. But it is both a significant thing and a pleasant thing to record that a busy president of a very busy railroad finds time enough in crossing the ferries to exchange the time o'-day with station-sweepers, engine wipers, and men of the road.

II

The head of the Ballard Mills, of Louisville, Ky., a big industry, confesses that he tried hard to get acquainted with his men and failed until quite recently. A college graduate, his nephew, supplied the missing method.

"If you want to give them anything," he said, "give them something they want."

So the idea of a library full of books was supplemented in many important particulars. The library became also a billiard room and even a card room. A big vacant space around the elevators was turned into a baseball park at very small expense. The men formed their own teams, and fought it out with vigor all through the summer. Office staff and workingmen met in the broad democracy of sport. The results, says Mr. S. T. Ballard himself, is "a spirit of mutual good-fellowship that it is a pleasure to see, and one that will certainly aid the business as time rolls on."

THE HEAVY COST OF WAR AND GLORY TO JAPAN

THE new Japanese ministry announced as its financial policy for the coming year, retrenchment by $100,000,000 in its expenditures, of which about $45,000,000 will be cut from the army expenses and perhaps $15,000,000 from the navy expenses. The redemption of the national debt will continue at a yearly rate of $25,000,000.

That change was needed; for expenditures for the year that ends next March showed little or no retrenchment over the preceding year, but a little increase in the army and navy appropriations. Now, half way through this fiscal year, comes this new announcement, to the effect that the expenditures for the year to end March 31, 1910, will show the large curtailment of $100,000,000.

The Japanese and those who have at heart the well-being of the Empire feel relieved. The terrible burden of taxation that crushes the population cannot be understood in this country. The taxes fall upon practically everyone who earns money, whether by salary, in business for himself, or by inheritance. The man who enjoys a net income of $150 per annum is taxed $16.50 by an income tax alone. In addition, he pays increased prices for his sugar, his oil, his liquors, even his food and clothing, on account of the extraordinary taxes levied after the war. If the people's industry survives the terrible strain under which it now labors, that survival alone will entitle Japan to the respect of the civilized world. If she can expand her commercial boundaries under this burden, what may she not do when her hands are freed?

INVESTING THE WIDOW'S FUNDS

THERE is no other investment problem so difficult as the task of investing a small fund upon which a woman must live. In the great majority of cases, when the breadwinner of a family dies, the funds left for the support of his family are pitifully small, for this nation is not a nation of savers. Too often, in the case of salaried men, the scale of living has been very high, and the task of getting a living after the ceasing of the salary-revenue is made doubly difficult.

A life insurance man who ought to know what he is talking about says that the average man on a salary of $1,500 a year carries insurance of less than $1,000, and saves practically nothing. In many cases he buys a home and pays for it on instalments. If he dies without having accumulated any other assets than the home, his widow is left with a home, a thousand dollars in cash, and no other sources of revenue.

This is an everyday problem. In most cases it is complicated by the addition of children, who must be fed and clothed and educated. Clearly it is utterly impossible to live on this. That is the reason why so many women who during the lifetime of their husbands lived in comparative comfort are compelled at widowhood to go to work. They seek positions as housekeepers, mother's helpers, nurses, stenographers, bookkeepers. A salary of ten dollars a week is 52 per cent. per annum on a capital of $1,000. A woman who can earn ten dollars a week gets as much revenue as she could safely get from an invested fund of $10,000.

In such a case as this, the problem narrows down to the task of making her little legacy help her to earn a salary. A large part of it should be spent in living expenses during a course of preparation for work, and in lessons in whatever branch she cares to take up. A business college course, if suitable to her, a course in sewing, in cooking, in caring for children, will come within the compass of her $1,000. If she has passed the age of activity, the problem is more difficult, but it is not impossible. A little village store can be leased and stocked, or any one of a hundred more or less suitable vocations can be put in play on a capital of a thousand dollars.

One of the most successful real estate agents in a rich suburban town is the widow of a man who a few years ago occupied one of the best houses in that town. At his death, his estate melted away before the demands of his creditors, leaving his widow practically nothing. On the advice of a friend, she opened a small real estate office in the town, and studied the business of real estate and the collateral sources of revenue that go with it. At first her former social friends were her best patrons, throwing in her direction all the business they could. Gradually, she added to her business a life insurance agency, a fire insurance agency, and as time went on the agency for two large coal companies that sold fuel in that county.

To-day, after a period of about ten years, she has bought back the home she lost through the death of her husband and enjoys a revenue probably as large as his was. Of course it is an exceptional case. The support of her friends at the outset, the small capital she had in her own right, and her own native ability combined to make a winning combination. Lacking any one of these three she could not have gone very far. Even so, her career may serve as an inspiration to some other woman in a similar position.

Turning from such cases as these to the case of the widow who seeks a safe investment for funds sufficient to give her a living, the problem becomes much easier of solution, because the field broadens out considerably. There are a thousand ways in which a sufficient sum of money can be made to produce a living income by investment, and with perfect safety.

In general, the policy of THE WORLD'S WORK in giving advice about investments for women is to refer the inquirer to the list of railroad bonds legal for New York savings-banks, or the list of municipal bonds in her own town, free from local taxation. This is a safe criterion, and one that leaves the financial editor conscience-free. If some woman untutored in finance asks questions

about investing her funds, it is safe to insist that she buy only the best.

Panics may come and pass, and she still has her bonds, and receives her interest regularly at the time appointed. She gets, as time goes on, a feeling of absolute security and comfort. She stops consulting the newspapers; and shivering every time she hears about a break in the Wall Street market. She hears of other women who have lost their money in stocks of mills or mining companies, and she thanks providence that she, at least, ran no risks and lost no money.

We do not believe that financial education is needed by most women of this class. The less they know about Wall Street, the stock market, and the science of buying and selling, the better for them. One day, in the panic of last year, a woman wrote to this magazine asking to be advised as to an investment of $9,000. Someone had told her that it was a time for bargains, and she insisted on bargains. She was told to buy gilt-edge bonds, then selling very low, and put them away and forget about them, after registering them in her own name.

She did it, without any further questioning. About a month ago, however, she wrote again. She had gone over her list of bonds with a man, a friend. He had pointed out that the last ten months or so had given her an income of nearly 5 per cent. from interest, and 8 per cent. if she sold the bonds and took her profits, making about 13 per cent. for the year. She had thereupon sold the bonds, and she wrote to THE WORLD'S WORK asking for advice how to repeat the performance in the next twelve months. Her little smattering of knowledge, gained from two sources evidently not in perfect accord, had led her to the opinion that she ought to be able to make about $1,000 a year out of her fund of $9,000. She seemed to think that all she had to do was to ask us when to buy and the other man when to sell.

A good many cases of the same kind come up. In cases of men who bought stocks in the slump for cash, it was right that they should take their profits and seek reinvestment. No one, however, can pretend to supply a method by which a gilt-edge investment can be made to net 10 per cent. If the market swung up and down by clockwork, regularly at stated periods, it might be possible; but the market does not swing at all. Sometimes, for periods of many months, it travels along on a dead level. Then it takes a sudden downward pitch; then a jump — then dead monotony again. If anyone can supply a method by which the conservative investor can be made certain of profits in the bond or stock market he is at liberty to do so, but it is far beyond our knowledge or skill. In the midst of the bad market last year, we almost invariably told women who wanted investments to buy the strong listed bonds, not always the bonds legal for savings-banks, but bonds of the class represented by the Chicago, Burlington & Quincy joint 4's, the Oregon Short Line refunding 4's, Southern Pacific refunding 4's, and other bonds of this grade. Nowadays, with these bonds and the others of their class selling ten points or more higher than they sold a year ago, and dangerously near the high points of their history, one cannot be so certain in advising them for promiscuous investment. It was easy a year ago to send a woman a list of ten bonds, and tell her to take her choice, as they were all perfectly good and selling cheap. Now, one must pick out two or three bonds, and speak even of them with caution.

In general terms, the present bond market is not one in which women should seek bargains for their investment. Most of the bond bargains of the day in the listed market are more or less speculative. They are selling very cheap because somebody knows that there is going to be trouble next year, when the floating debt has to be paid off; or because somebody is selling out quietly in anticipation of trouble. One can still find good bargains in the unlisted bonds, but they need a special knowledge for their selection.

If I had to invest a large fund for a woman to-day, I think I should look pretty carefully over the local municipal bond market before I went anywhere else. In New York, it would be worth while to try to get a block of New York City revenue bonds, maturing in a couple of years. In most cities, one can get short-term serial bonds, to give one a good profitable use for money for a year or two. If not, there are hosts of solid equipment bonds and short notes issued by strong railroads which can be bought to pay about 5 per cent. and give the money back in two years.

The theory upon which such investment is based is that some time during the next two-year period there will be better chances for investment than there are to-day. One does not want to make a permanent investment when prices are high, any more than one cares

to buy a house when prices are high. It is better to pay rent for another year or so; and similarly it is better to leave your money in the bank for another year or so, or to invest it in short-term notes or bonds. If you use ordinary judgment, you can buy such securities as will not sell much lower no matter what happens. In other words, these short-term securities will be always salable very near their present prices if you should happen to find a real investment bargain during the next two years. Sometimes bargains turn up suddenly, and you cannot wait for them until your money is released. Therefore you ought to be able to sell anything you buy with this idea in your mind.

A word of caution is needed in an article like this one. It is the same old warning; if you are a woman, don't buy mining stocks, no matter how good they may seem; don't buy new manufacturing stocks, no matter how much they are praised by their promoters, or even by your friends; don't buy any stocks at all except the best possible stocks, stocks that have paid steady dividends through at least two panics; and don't lend your money on personal notes, even to your brother or your clergyman.

C. M. K.

ARE YOU REALLY INSURED AGAINST FIRE?

A WOMAN at Oyster Bay, N. Y., had a fire insurance policy of $5,000 on her house. She had paid premiums for eighteen years to the Home Insurance Company of New York. In the winter of 1906 she made a contract to sell this house to a man who had been living in it as a tenant. Before he had paid for the property, the house burned. She had made no legal assignment or transfer of the policy.

When she made application to the company for her money, the company refused to pay, on the ground that she was no longer the owner of the house, and had suffered no loss. The loss, they claimed, fell on the new owner. His application for the money was met by the statement that he held no policy, and the company was not obliged to make any payment to him. The company offered to pay the original owner any loss of personal property in the fire, but declined to acknowledge any other liability.

In this attitude the insurance company is apparently right, according to the law. I find the statement quite clearly made in Flanders's treatise on fire insurance law, in these words:

"After a sale, if nothing more is done, no surrender or change of the policy, nobody could recover on it in case of loss; not the original insured, because, having parted with the property, he sustained no loss; not the purchaser, because he has no contract with the company."

To every man or woman who buys a house, a store, or any other insurable property, this story has its lesson. Talking to an agent who writes a great deal of insurance in suburban New Jersey, I learned that in thousands of sales of property accomplished without the aid of a lawyer or agent who understands the technicalities of insurance, the insurance in force is allowed to lapse, sometimes for months, sometimes only for a few days, sometimes for a much longer time.

Anyone who buys property of this sort should immediately see to it that an assignment of insurance is made, not by the mere handing over of a policy — that means nothing — but in the form of assignment provided for in the policy itself. The transfer involves little or no trouble. A man selling a house that is insured can transfer the insurance along with the house by giving notice to the company, obtaining its consent, having the policy properly indorsed, and then delivering it to the buyer of the house.

This, of course, merely illustrates the numerous ways by which a man may lose his property and fail to recover its value from an insurance company, even though he may fondly think that he is properly insured.

One of the most fruitful causes of such loss is the failure of people to have everything put into the policy that concerns the policy. The word of an agent, a verbal understanding of

some sort between the owner of the house and the man who makes out the policy, some failure to stipulate in the policy itself that a part of the house is to be used for a special purpose involving the use of gasoline, or benzine, or some other inflammable material, the storage of an automobile in the stable — all these may tend to invalidate the whole policy, and bring a total loss upon an owner who thought that he was covered and protected. There are many other important details to be considered, but all of them are referred to in the policy, and none are beyond the comprehension of the average property-owner. If you are in doubt about any of them, state your doubt clearly to your agent or the company; and file their answer and a copy of your letter along with your policy, after having followed the advice. Do not keep your insurance papers in a place where they may be destroyed by the same fire that injures or damages your property.

One of the strangest contrasts between the life insurance and the fire insurance habits of men centres on the fact that while every man knows that some day he will die, yet relatively few men take out life insurance; while, on the other hand, every man thinks his house will never burn down, yet nearly every owner of a house insures it more or less. He does it on the theory that what is good enough for everybody is good enough for him; and he simply takes his policy and puts it away without reading it.

Every fire insurance policy should be carefully read by the insured, and he should have in mind all the time the exact conditions that prevail in his case. He may find that in the written clauses of the policy there is some exception that exactly fits his case. Of course, the method of heating and lighting the house is an important question, and one for which most men are apt to provide.

From all this, it must not be inferred that many of the insurance companies are looking for technicalities to enable them to avoid payment; but they are engaged in a hazardous business in which the average margin of profit is quite small. They cannot, in justice to their stock-holders and policy-holders, pay claims for which no legal liability exists, when such claims are caused by the carelessness of property-owners, who do not heed or are not governed by the clear conditions of the policy.

A man who took out insurance on goods on the first floor of a building afterward moved the goods from the first to the third floor. A fire destroyed the property. The company refused to pay, on the ground that the location had been changed and that the policy was thereby invalidated. This contention was not maintained in the courts, but it might have been if the evidence had tended to show that the goods could have been saved if they had still been on the first floor. In other words, if the fire had started at the top of the building instead of in the basement, the insured might not have been able to recover his loss, but the dispute would have been avoided entirely if a written permit for the removal had been endorsed on the policy.

The courts in this country are very liberal toward people who hold insurance. Some strange cases are on record, in which the courts have stretched the language of policies to a considerable extent to make them cover losses. Such cases are nearly all cases where it has been shown that the holder of the policy *thought* his risk was covered, but found out that some little clause had invalidated his policy. But this tendency on the part of the courts does not furnish an excuse for the utter carelessness that seems to mark the practice of taking out fire insurance. No one wishes to bring a suit for his insurance money; for he knows that the process of law is long and weary, and that his expenses will run beyond his estimates. It is much easier to avoid a lawsuit than it is to win it.

In taking out a policy of fire insurance, there are only a few rules to be observed if one would avoid trouble. The first is to make your title clear. If you are only a half owner of a house, that fact must be disclosed to the company.

Take out your insurance through a duly authorized agent of the company you choose, or through a broker who does a large business. Select an agent of whom you know, and whom you can trust in matters of fact. Tell him all possible details of the property, its actual value at the moment of insurance, its surroundings, its uses. When he fills in the written part of the policy, see that it is true in every detail. Do not let a loose general description stand on your policy.

If your insurance is on a factory, a store, or a business plant of any kind, you must see to

it that every proper function of that plant is allowed under the policy. If, for instance, you have a general store in the country, you will probably have to sell kerosene, fireworks, gunpowder, and other dangerous things. See that your policy, whose printed clauses will prohibit the storage of such things in your store, has a written clause allowing you to have a certain amount of them, perhaps at stated times of the year. Always remember that an oral exception made by the agent is not of much value to you. If you have it in writing on the policy, even though it conflict directly with the printed words on the same policy, the written words overrule the printed. Always get it in writing if you want it at all.

When you have made a truthful statement of all the essential facts concerning your property, and had them all written into the policy, you may be sure that you have a solid insurance foundation under your place. All that remains to be done is to see to it that you do not violate any of the clauses that you have signed. To do this, you must clearly know what those clauses are. Read your policy carefully, therefore, before you put it in the safe deposit box.

If you are in the habit of going away and leaving your house unoccupied for two or three months in the summer, you must make that clear to the company, and have a memorandum to that effect in the policy.

Suppose your house burns down, what then is necessary? Your policy requires that you give notice to the company, or the nearest agent of the company, immediately. What the word "immediately" means has been the subject of more than one suit. To be safe, you had better give written notice right away, even if the agent is one of your neighbors and helped to fight the fire. Perhaps a written notice is not stipulated in the policy, but it is better to have a record in existence at any rate. The courts have held various things about the meaning of "immediate." Four days was considered prompt enough; but eleven days was not. It is better to do it right away, so that the company can get its appraisers on the ground immediately and so avoid a possible fight over the value of salvage, etc. This of course, presupposes that you are an honest man, and want only what you are entitled to. If you want any more, you had better hire a lawyer and provide for bail.

If you are one of the thousands who close up the house and go away during the summer, you had better provide for proper notice both to yourself and to your insurance company in case your place is damaged or destroyed by fire during your absence. Even though in the long run you may recover if your notice of loss is delayed, as you can in many cases, guard against delay and trouble if you can. Any friendly neighbor can act as your agent in notifying the company; but, if no attention is paid to his notice, you had better back it up personally as soon as you learn of the loss.

Common sense is the best safeguard to place behind your insurance policy. Honesty is another safeguard. If you are honest and sensible in taking out your policy, and sensible and honest in enforcing it if it falls due and in obeying its binding clauses at all times, you will have no trouble. The average fire insurance company in this country is honest. Some of them are not very strong; but you will easily find out which are strong if you have an honest agent or a friend who knows anything about insurance or finance. The policies, in their general clauses, follow one standard, and it is only in the written clauses that you need expect much trouble. In nine cases out of ten, this trouble will arise not through any desire on the part of the company to trick you, but through your own foolishness in not being explicit, frank, and sensible.

It is hardly necessary to emphasize the necessity of insurance. Everyone who owns a home or a store knows that he ought to insure. My friend, the insurance agent, however, tells me a remarkable fact. It is that a very large percentage of the home-owners in suburban sections, holding homes with a mortgage on them, or part-paid, cover the mortgage by insurance because they are compelled to do so, but fail to cover any of the rest of the value of the property. In cases where the mortgage runs to two-thirds of the value, or even three-fifths of the value, this is excusable. In the great number of cases where the mortgage or debt is far less than the insurable value of the house, it seems strange to find a man who is willing to protect his debtors, but unwilling to protect his own property. Yet my friend tells me that the suburban section of New Jersey is full of such men. In case of fire, such men are likely to have nothing left to start new homes with. Are you one of them? If so, spend a few dollars and make your insurance cover all it will cover.

THE GUARANTY OF BANK DEPOSITS

THE aggregate deposits of the New York banks that were closed last year were nearly $100,000,000. A great many people were badly frightened by these failures, a few committed suicide; and the closing of the banks did a great deal to disturb the business conditions of the country at large and to accentuate the panic which swept the whole country. This fact is used as the basis for the campaign looking toward some sort of Government guaranty of bank deposits. In fact, the "guaranty" plank in the Democratic platform would not be there had there not been a widespread disturbance of public confidence in the banks growing out of just these facts. Now what would have happened in the autumn of 1907 had the guaranty idea been in effect, and had it applied to *all* the banks, as the Democratic plank seeks to bring about in the long run? For the sake of argument, suppose that the guaranty fund had been accumulating for a number of years, and had reached a total of $50,000,000.

Obviously, then, the bank failures of a single month in a single city would have wiped out the guaranty fund and left a deficit, unless the fund had been in existence for many years. Who, then, would make good that deficit? The obvious answer is — the Government. Now the facts of the matter are that, if the Government of the United States had been called upon suddenly in the panic of last autumn for $50,000,000 in gold, either the Government must have defaulted on that obligation, or it would have been obliged to strip its gold reserves. In other words, the guaranty of bank deposits, if in full force and backed by the Government at that time, would have plunged this country into a panic worse than the panic of 1893, which was actually caused by the stripping of the treasury reserves.

Of course, the plan as advanced by the Democratic platform does not directly call for a Government guaranty. The political plank provides for a guaranty fund to be subscribed by the banks, and not for a placing of the Government credit behind the banks. This being taken at its literal face value makes the guaranty a laughing-stock. No banker, no man well versed in the science of banking, can think for an instant that such a fund, without any further backing by the Government Treasury could guarantee the deposits of the banks of this country. The deposits in national banks alone, not counting Government deposits, are nearly $4,500,000,000. Even the most radical talkers about guaranties do not advocate the taking of more than $50,000,000 out of the banks for a guaranty fund. Let those who think that the "guaranty of deposits" idea means absolute certainty on the part of the depositor think about these figures, and remember at the same time that the failures in a single city in two months more than doubled the maximum of guaranty fund proposed.

The average man throughout this country, of course, is not figuring on the amount of the guaranty fund. When he hears men speak of "guaranty" he takes it to mean absolute guaranty of bank deposits by the United States Government. He thinks that if his bank in Oshkosh closes its doors, it will be immediately reopened, and his deposits will be turned back to him. He imagines that the cash will come from the United States treasury. That is not in the Democratic platform, but that is the idea upon which the people of the West and some of those in the East have set their minds. That is what these people seem to demand.

It is well, then, to follow this idea further and see what it would mean. It has already been pointed out what it would have meant last autumn. Perhaps it is better to go further with the panic of 1907. Few men have forgotten that at the very time when the panic raged in New York the Government itself was short of money — and this will almost inevitably be the case in a financial stringency. The Government of the United States could not have paid off the depositors of the New York banks alone in 1907. Suppose that a guaranty fund had existed. It is not too much to say that the Government would have been forced to temporize with its creditors. Perhaps the Government would have taken charge of the failed banks. It would have promised to pay the depositors in time. Would these depositors have been paid any faster than they have been paid? For to-day nearly every failed bank has

paid its depositors in full, and most of them are again open for business. The *Wall Street Journal* states that the actual loss to depositors in New York banks since January 1, 1905, is less than $15,000.

Now let us go further and suppose that the Government actually endorse the obligations of the banks, so as to make it absolutely sure that the depositors can get their money immediately. Examine the effect of such a guaranty on the credit of the country. It is simply a proposal that the Government guarantee a debt that is five times as great as the debt of the country at the close of the Civil War. As has been pointed out before, default would be almost necessary in a time of panic. Even if the Government withdrew from circulation and locked up as much as $200,000,000 gold, 5 per cent. of the deposits, that enormous withdrawal would not more than cover the aggregate of deposits of failed banks in one year of middle-class panic. How great a disturbance and crippling of business it would cause to make such a withdrawal of gold may best be left to the economists.

Nearly seventy years ago, in 1840, it was discovered that a law intended to guarantee the circulation of New York State banks also acted as a guaranty of the deposits. A fund had been built up under this law in the eleven years preceding 1840, for the law was enacted in 1829. As soon as this guaranty of deposits was discovered, a debauch of speculation began. Banks came to life marvelously, seeking the deposits of the people under the broad wings of a paternal government. Banks with an aggregate capital of more than $99,000,000 came into sudden life. Tammany Hall evolved a plan to start a fund to pay its debts. The old strong banks fought vigorously against the law and its results, and they were hopelessly beaten. The people, of course, believed in the guaranty. Thousands of people put money into the banks, believing that the State of New York stood ready to pay them off if anything happened. Something did happen. It took only a few years of this régime to open the eyes of the people. In 1842, eleven banks closed their doors, the "guaranty fund" was wiped out and turned into a deficit — and the law was limited to the guaranty of circulation and finally repealed altogether. It has never been re-enacted. It was a flat failure, and it brought ruin in its trail where it promised absolute safety. A host of scoundrels reaped a rich harvest by it; and they reaped it from the very people whom the "guaranty clause" would now pretend to protect. The Comptroller of the state officially declared that the good banks had been heavy losers by the swindling operations of some of their associates.

Now it is time to look at the facts with regard to the accumulation of a "guaranty fund" under the proposed plan, so far as that plan has been outlined. Every bank that does business under this law would be obliged to contribute its pro rata share to the fund. The little bank in the mining camp, collecting the savings of the men that toil, discounting no commercial bills worth while, but lending its funds to the bigger banks at the bigger centres, would pay according to its deposits. The biggest bank in New York, with its millions of deposits and its millions of "discounts" also would pay in the same proportion. This, one may say, is as it should be. But there is another aspect of the case.

There are several banks in New York that have been in business for sixty years or more that have never defaulted on any single obligation, that have never closed their doors in any panic. To them a depositor is a friend. In many cases, their present depositors are the third generation of the same families that have trusted this bank with deposits. On the other hand, in the same streets where these banks do business, there are banks that are new, banks that hold out glittering promises to depositors, banks controlled and operated by men who have no love for their depositors, nor any feeling of great responsibility for their money. Some of these banks go down to failure in every panic that sweeps the country. Disaster strips the cover from their iniquities, and shows their money diverted from its proper channels into channels where it best may serve the interests of the financiers who control them.

The banks of this kind will pay to a guaranty fund in exact proportion to their deposits. A dollar taken by the old bank will call for the same amount of money set aside as will a dollar taken by the new bank. Now, quite clearly, every dollar taken from either bank for this fund or for any other purpose in which it will not earn money weakens by so much the security of the depositors, and the usefulness of the bank.

In a panic, the depositor of the new bank may be exposed to danger of collapse. The depositor of the old bank is exposed in a far

less degree. It seems quite clear that the stronger bank is taxed not for the safety of its own creditors or depositors but for the safety of a mass of creditors of the weaker bank. To demonstrate the justice of this, it will be necessary to demonstrate that the present system of the world at large is wrong, and that a communistic system of life and business is right.

If a man's house has been looted, he will get the sympathy of the neighbors, but no neighbor feels called upon to make good the loss. If he is a careless householder, who does not lock his doors, who leaves the house all unprotected for days at a time, who neglects to carry burglary insurance, he will not even get the sympathy of the neighbors. But in the banking world, under this guaranty scheme, he would not only get sympathy, but the other people who had not lost money would be called upon to make good his losses. The bank that has for half a century kept up its cash reserves, refused to be drawn into speculative investments, in other words maintained its proper insurance against hard times and panics, is called upon for its pro rata share of money to make good losses entailed on depositors it never heard of, in a town a thousand miles away, and brought about by the swindling operations of men whose names have never been published in any but the local papers.

If this guaranty idea means anything at all, that is surely what it would mean in operation. No one doubts who would pay the bills. It would be the strong, careful, always-solvent banks. Neither is there any doubt as to the people who would receive the money hoarded up out of the banks. It would be the depositors in weak banks. If a panic ran long enough to call upon the entire guaranty fund, as it surely would, it would mean that the strong banks which had not been obliged to call upon the guaranty funds had received no benefit at all from the money they had subscribed. It is not difficult to imagine the position after a panic. The depositors of failed banks, let us say, have been paid. The fund is depleted. The Government calls upon the banks to begin again to pile up the guaranty fund. Once more the strong banks begin to put in money that they know they never can get out again except by closing their doors. The cycle of panics is supposed to be seven years. Let us suppose that in those seven years of calm the banks have piled up a sum equal to 5 per cent. of their deposits. Then the panic sweeps it away. They start again to pile it up. If a bank is unfortunate enough to live and do business for sixty or seventy years, as some of the best of them have, they will, in that time, have contributed a sum equal to nearly 50 per cent. of their average deposits. This money will have gone to the support and assistance of other banks, wild-cat banks in many cases, and it will in no case have yielded one cent of profit, or one cent of collateral benefit to either the depositors or the stockholders of the strong bank.

There are many other aspects from which the subject can be considered. It is as well to glance at the favorable attitude. Mr. Nathan Straus, one of the most eminent of New York's business men, recently cited the case of two pitiful failures of private banking houses in the East Side section of New York, and drew from them the conclusion that deposits ought to be guaranteed. His own words are worth quoting:

"The weeping women and children on the East Side present to my mind the strongest possible argument in favor of the guaranty of deposits as advocated by Mr. Bryan. If he had been President, the failure of these banks would have been impossible. When the appeal is to the heart, legal technicalities should not be permitted to become obstacles. It 's all very well to talk about the inability of the law to reach these evils, but if you go down into those streets, the cries of these women and children will wring your heart, and, if there is any humanity left in you, you will start out to brush aside these obstacles and get through a law that will be effective.

"Of course, all the big bankers who don't want to give the guarantee will be against such a bill. The rich always have the best of it. They have their lawyers and can fight: the poor can't help themselves. Every time there is a fight on I am for the under dog. If I had all the money people say I have I 'd go down there and pay them off."

This, of course, is a purely sentimental argument in favor of guaranteed bank deposits. The Washington Government cannot, now or at any time before the Constitution is wiped away, make a law that shall regulate the performances of private banks in the State of New York, or in any other state that charters banks to do business under its own laws. The Democratic platform does not pretend to make a Federal law that shall accomplish any such end. It does hint that the law should provide "an equitable system that shall be available to all banking institutions wishing to use it."

What this system is, or could be, or how it could be applied to the banks that do business under state laws neither the Democratic platform nor Mr. Straus undertakes to say.

As a matter of fact, a Federal guaranty act, framed exactly to meet the demand of the Democratic platform so far as that demand can be formulated, would not affect, except in the slightest degree, the very poor man or his bank deposits except in the District of Columbia and in the territories; for poor men do not have bank accounts in the national banks, and only the national banks can be reached by Federal law. Roughly, there are $5,000,000,000 of deposits in national banks; $4,300,000,000 in state and private banks; $3,100,000,000 in trust companies and $3,700,000,000 in savings-banks.

A Federal law might be framed to guarantee the deposits in national banks. Probably 90 per cent., or $4,500,000,000, of those deposits is owned by men who are comparatively rich men. The national banks are commercial banks, and they bid in general for business accounts. What is even more to the point is the fact that the average loss to depositors in national banks in the past forty years, since the national banks began business, is only $\frac{1}{26}$th of 1 per cent. per annum. Sometimes it takes a long time to get the money from a broken bank; but that is a minor matter. In other words, it would seem that the national banks do not need the protection of a guaranty fund.

Now as to the other depositors, the Federal law could not protect them directly. The poor man deposits his funds in the savings-banks in states where the savings-banks have developed; and in trust companies and private banks in the states of the Middle West, where the savings-bank is not so highly developed. The scenes depicted by Mr. Nathan Straus accompanied the failure of two private banks patronized exclusively by foreigners, run by foreigners, and in which the business was conducted almost entirely in foreign tongues. The regulation of such banks is not as strict as it ought to be. That is the fault of the State of New York, and not of the Government at Washington. It will be remedied, if at all, by legislation at Albany; for the constitution provides that Albany shall make the laws for the state and private banks, the trust companies, and the savings-banks that operate in New York.

These are the chief facts that have a bearing upon this question. Other facts are of interest. The average man who knows nothing of banking does not stop to consider that he has to-day a far more ample guaranty against loss of his bank deposits than any law can provide him. Let us look at the case of the national banks, as analyzed by Professor Laurence J. Laughlin, of Chicago University, in a speech before the Bankers' Convention at Denver. He takes the total deposits in national banks, exclusive of deposits by the Government, at a total of $4,313,000,000. As an ultimate guaranty fund against these deposits, over and above the actual assets held by the bank in the shape of investments, commercial paper, buildings, etc., he lists these items, which can be called upon for the liquidation of the banks in case of bankruptcy:

RESERVE RESOURCES	AMOUNT
Capital	$912,361,919
Surplus	555,000,248
Undivided profits	203,108,414
Stockholders' liability	273,000,000
Total	$1,943,470,581

This is a total of 45 per cent. of the deposits. It is held by the banks themselves, of course; but in Oklahoma, where they have a state guaranty fund in operation, the state is depositing this fund in the banks.

It is as well to draw upon Professor Laughlin, who is not a banker but an economist, for a final description of the guaranty fund in actual operation:

"As you all know, the scheme to insure deposits requires all banks, good and bad, to contribute to a fund to pay off depositors in failed institutions. The more successful the bank, the larger its deposits, the more it must pay into the fund; the less successful a bank is in impressing the public with its security, the less it pays into the fund. The successful are to pay for the mismanagement of the unsuccessful. If burglar A robs B's house, go to the most honest man in the village, C, and rob him to pay for B's loss — it will increase the eagerness of all men to be honest and discourage burglary! C, the successful man, will enjoy paying for B's carelessness in keeping no locks on B's house; and if C has to pay for all the deviltry in the town it will stimulate others to get honest, so that they can pay for similar losses! As C, who had nothing to do with the case, is penalized, and not A, the burglar, the plan will discourage burglary! The scheme is perfect; it would work perfectly — in an insane asylum."

RANDOM REMINISCENCES OF MEN AND EVENTS

II. SOME OLD FRIENDS

BY

JOHN D. ROCKEFELLER

[*The first article in this series of Mr. Rockefeller's reminiscences was published in the October number of* THE WORLD'S WORK. *In it Mr. Rockefeller said that he was convinced that happenings in the history of the Standard Oil Company had not been fully understood, and that he hoped to set them forth in a new light. Therefore he sketched the growth of the business, and the policies which govern its management and its treatment of customers and competitors. Afterward he discussed corporations in general, their relations to the National and State governments, and their right attitude toward the public. Interesting observations about the typical American business man, American newspapers, labor and wages, and the time when successful men may wisely retire from active business made part of the first chapter.*—THE EDITORS.]

SINCE these Reminiscences are really what they profess to be, random and informal, I hope I may be pardoned for setting down so many small things.

In looking back over my life, the impressions which come most vividly to my mind are mental pictures of my old associates. I wish I could write fully of them, but this might try my readers' patience beyond endurance; and in speaking of these friends in this article, I would not have it thought that many others, of whom I have not spoken, were less important to me, and I shall hope to refer to this subject of my early friends again in a later chapter.

It is not always possible to remember just how one first met an old friend or what one's impressions were, but I shall never forget my first meeting with Mr. John D. Archbold, who is now a vice-president of the Standard Oil Company.

At that time, say thirty-five or forty years ago, I was traveling about the country visiting the point where something was happening, talking with the producers, the refiners, the agents, and actually getting acquainted.

One day there was a gathering of the men somewhere near the oil regions, and when I came to the hotel, which was full of oil men, I saw this name writ large on the register:

John D. Archbold, $4.00 *a bbl.*

He was a young and enthusiastic fellow, so full of his subject that he added his slogan, "$4.00 a bbl.," after his signature on the register, that no one might misunderstand his convictions. The battle cry of $4.00 a barrel was all the more striking because crude oil was selling then for much less, and this campaign for a higher price certainly did attract attention — it was much too good to be true. But if Mr. Archbold had to admit in the end that crude oil is not worth "$4.00 a bbl.," his enthusiasm, his energy, and his splendid power over men have lasted.

He has always had a well-developed sense of humor, and on one serious occasion, when he was on the witness stand, he was asked by the opposing lawyer:

"Mr. Archbold, are you a director of this company."

"I am."

"What is your occupation in this company?"

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He promptly answered, "To clamor for dividends," which led the learned counsel to start afresh on another line.

I can never cease to wonder at his capacity for hard work. I do not often see him now, for he has great affairs on his hands, while I live like a farmer away from active happenings in business, playing golf, planting trees; and yet I am so busy that no day is long enough.

Speaking of Mr. Archbold leads me to say again that I have received much more credit than I deserve in connection with the Standard Oil Company. It was my good fortune to help to bring together the efficient men who are the controlling forces of the organization and to work hand in hand with them for many years, but it is they who have done the hard tasks.

The great majority of my associations were made so many years ago, that I have reached the age when hardly a month goes by (sometimes I think hardly a week) that I am not called upon to send some message of consolation to a family with whom we have been connected, and who have met with some fresh bereavement. Only recently I counted up the names of the early associates who have passed away. Before I had finished, I found the list numbered some sixty or more. They were faithful and earnest friends; we had worked together through many difficulties, and had gone through many severe trials together. We had discussed and argued and hammered away at questions until we came to agree, and it has always been a happiness to me to feel that we had been frank and aboveboard with each other. Without this, business associates cannot get the best out of their work.

It is not always the easiest of tasks to get strong, forceful men to agree. It has always been our policy to hear patiently and discuss frankly until the last shred of evidence is on the table, before trying to reach a conclusion and to decide finally upon a course of action. In working with so many partners, the conservative ones are apt to be in the majority, and this is no doubt a desirable thing when the mere momentum of a large concern is certain to carry it forward. The men who have been very successful are correspondingly conservative, since they have much to lose in case of disaster. But fortunately there are also the aggressive and more daring ones, and they are usually the youngest in the company, perhaps few in number, but impetuous and convincing. They want to accomplish things and to move quickly, and they don't mind any amount of work or responsibility. I remember in particular an experience when the conservative influence met the progressive — shall I say? — or the daring side. At all events, this was the side I represented in this case.

ARGUMENTS VERSUS CAPITAL

One of my partners who had successfully built up a large and prosperous business, was resisting with all his force a plan that some of us favored, to make some large improvements. The cost of extending the operations of this enterprise was estimated at quite a sum — three million dollars, I think it was. We had talked it over and over again, and with several other associates discussed all the pros and cons; and we had used every argument we could command to show why the plan would not only be profitable, but was indeed necessary to maintain the lead we had. Our old partner was obdurate, he had made up his mind not to yield, and I can see him standing up in his vigorous protest, with his hands in his pockets, his head thrown back, as he shouted "No."

It 's a pity to get a man into a place in an argument where he is defending a position instead of considering the evidence. His calm judgment is apt to leave him, and his mind is for the time being closed, and only obstinacy remains. Now these improvements had to be made — as I said before, it was essential. Yet we could not quarrel with our old partner, but a minority of us had made up our minds that we must try to get him to yield, and we resolved to try another line of argument, and said to him:

"You say that we do not need to spend this money?"

"No," he replied, "it will probably prove to be many years before such a sum must be spent. There is no present need for these facilities you

want to create, and the works are doing well as they are — let 's let well enough alone."

Now our partner was a very wise and experienced man, older and more familiar with the subject than some of us, and all this we admitted to him; but we had made up our minds, as I have said, to carry out this idea if we could possibly get his approval, and we were willing to wait until then. As soon as the argument had calmed down, and when the heat of our discussion had passed, the subject was brought up again. I had thought of a new way to approach it. I said:

"I 'll take it, and supply this capital myself. If the expenditure turns out to be profitable the company can repay me; and, if it goes wrong, I 'll stand the loss."

That was the argument that touched him. All his reserve disappeared and the matter was settled when he said:

"If that 's the way you feel about it, we 'll go it together. I guess I can take the risk if you can."

It is always, I presume, a question in every business just how fast it is wise to go, and we went pretty rapidly in those days, building and expanding in all directions. We were being confronted with fresh emergencies constantly. A new oil field would be discovered, tanks for storage had to be built almost over night, and this was going on when old fields were being exhausted, so we were therefore often under the double strain of losing the facilities in one place where we were fully equipped, and having to build up a plant for storing and transporting in a new field where we were totally unprepared. These are some of the things which make the whole oil trade a perilous one, but we had with us a group of courageous men who recognized the great principle that a business cannot be a great success that does not fully and efficiently accept and take advantage of its opportunities.

How often we discussed those trying questions! Some of us wanted to jump at once into big expenditures, and others to keep to more moderate ones. It was usually a compromise, but one at a time we took these matters up and settled them, never going as fast as the most progressive ones wished, nor quite so carefully as the conservatives desired, but always made the vote unanimous in the end.

THE JOY OF ACHIEVEMENT

The part played by one of my earliest partners, Mr. H. M. Flagler, was always an inspiration to me. He invariably wanted to go ahead and accomplish great projects of all kinds, he was always on the active side of every question, and to his wonderful energy is due much of the rapid progress of the company in the early days.

It was to be expected of such a man that he should fulfil his destiny by working out some great problems at a time when most men want to retire to a comfortable life of ease. This would not appeal to my old friend. He undertook, single handed, the task of building up the East Coast of Florida. He was not satisfied to plan a railroad from St. Augustine to Key West — a distance of more than six hundred miles, which would have been regarded as an undertaking large enough for almost any one man — but in addition he has built a chain of superb hotels to induce tourists to go to this newly developed country. Further than this, he has had them conducted with great skill and success.

This one man, by his own energy and capital, has opened up a vast stretch of country, so that the old inhabitants and the new settlers may have a market for their products. He has given work to thousands of these people; and, to crown all, he has undertaken and nearly completed a remarkable engineering feat in carrying his road on the Florida Keys into the Atlantic Ocean to Key West, the point set out for years ago.

Practically all this has been done after what most men would have considered a full business life, and a man of any other nationality situated as he was would have retired to enjoy the fruits of his labor.

I first knew Mr. Flagler as a young man who consigned produce to Clark & Rockefeller. He was a bright and active young fellow full of vim and push. About the time we went into the oil business Mr. Flagler established himself as a commission merchant in the same building with Mr. Clark, who took over and succeeded the firm of Clark & Rockefeller. A little later

he bought out Mr. Clark and combined his trade with his own.

Naturally, I came to see more of him. The business relations which began with the handling of produce he consigned to our old firm grew into a business friendship, because people who lived in a comparatively small place, as Cleveland was then, were thrown together much more often than in such a place as New York. When the oil business was developing and we needed more help, I at once thought of Mr. Flagler as a possible partner, and made him an offer to come with us and give up his commission business. This offer he accepted, and so began that life-long friendship which has never had a moment's interruption. It was a friendship founded on business, which Mr. Flagler used to say was a good deal better than a business founded on friendship, and my experience leads me to agree with him.

For years and years this early partner and I worked shoulder to shoulder; our desks were in the same room. We both lived on Euclid Avenue, a few rods apart. We met and walked to the office together, walked home to luncheon, back again after luncheon, and home again at night. On these walks, when we were away from the office interruptions, we did our thinking, talking, and planning together. Mr. Flagler drew practically all our contracts. He has always had the faculty of being able to clearly express the intent and purpose of a contract so well and accurately that there could be no misunderstanding, and his contracts were fair to both sides. I can remember his saying often that when you go into an arrangement you must measure up the rights and proprieties of both sides with the same yardstick, and this was the way Henry M. Flagler did.

One contract Mr. Flagler was called upon to accept which to my surprise he at once passed with his O. K. and without a question. We had concluded to purchase the land on which one of our refineries was built and which was held on a lease from John Irwin, whom we both knew well. Mr. Irwin drew the contract for the purchase of this land on the back of a large manila envelope that he picked up in the office. The description of the property ran as such contracts usually do until it came to the phrase "the line runs south to a mullen stalk," etc. This seemed to me a trifle indefinite, but Mr. Flagler said:

"It 's all right, John. I 'll accept that contract, and when the deed comes in, you will see that the mullen stalk will be replaced by a proper stake and the whole document will be accurate and shipshape." Of course it turned out exactly as he said it would. I am almost tempted to say that some lawyers might sit at his feet and learn things about drawing contracts good for them to know, but perhaps our legal friends might think I was partial, so I won't press the point.

Another thing about Mr. Flagler for which I think he deserves great credit was that in the early days he insisted that, when a refinery was to be put up, it should be different from the flimsy shacks which it was then the custom to build. Every one was so afraid that the oil would disappear and that the money expended in buildings would be a loss that the meanest and cheapest buildings were erected for use as refineries. This was the sort of thing Mr. Flagler objected to. While he had to admit that it was possible the oil supply might fail and that the risks of the trade were great, he always believed that if we went into the oil business at all, we should do the work as well as we knew how; that we should have the very best facilities; that everything should be solid and substantial; and that nothing should be left undone to produce the finest results. And he followed his convictions of building as though the trade was going to last, and his courage in acting up to his beliefs laid strong foundations for later years.

There are a number of people still alive who will recall the bright, straightforward young Flagler of those days with satisfaction. At the time when we bought certain refineries at Cleveland he was very active. One day he met an old friend on the street, a German baker, to whom he had sold flour in years gone by. His friend told him that he had gone out of the bakery business and had built a little refinery. This surprised Mr. Flagler, and he did n't like the idea of his friend investing his little fortune in a small plant which he felt sure

would not succeed. But at first there seemed nothing to do about it. He had it on his mind for some days. It evidently troubled him. Finally he came to me and said:

"That little baker man knows more about baking than oil refining, but I 'd feel better if we invited him to join us — I 've got him on my conscience."

I of course agreed. He talked to his friend, who said he would gladly sell if we would send an appraiser to value his plant, which we did, and then there arose an unexpected difficulty. The price at which the plant was to be purchased was satisfactory, but the ex-baker insisted that Mr. Flagler should advise him whether he should take his pay in cash or Standard Oil certificates at par. He told Mr. Flagler that if he took it in cash it would pay all his debts, and he would be glad to have his mind free of many anxieties; but if Mr. Flagler said the certificates were going to pay good dividends, he wanted to get into and keep up with a good thing. It was rather a hard proposition to put up to Mr. Flagler, and at first he declined to advise or express any opinion, but the German stuck to him and would n't let him shirk a responsibility which in no way belonged to him. Finally Mr. Flagler suggested that he take half the amount in cash and pay 50 per cent. on account of his debts, and put the other half in certificates, and see what happened. This he did, and as time went on he bought more certificates, and Mr. Flagler never had to apologize for the advice he gave him. I am confident that my old partner gave this affair as much time and thought as he did to any of his own large problems, and the incident may be taken as a measure of the man.

THE VALUE OF FRIENDSHIPS

But these old men's tales can hardly be interesting to the present generation, though perhaps they will not be useless if even tiresome stories make young people realize how, above all other possessions, is the value of a friend in every department of life without any exception whatsoever.

How many different kinds of friends there are! They should all be held close at any cost; for, although some are better than others perhaps, a friend of whatever kind is important; and this one learns as one grows older. There is the kind that when you need help has a good reason just at the moment, of course, why it is impossible to extend it.

"I can't indorse your note," he says, "because I have an agreement with my partners not to."

"I 'd like to oblige you, but I can explain why at the moment," etc., etc.

I do not mean to criticize this sort of friendship; for sometimes it is a matter of temperament; and sometimes the real necessities are such that the friend cannot do as he would like to do. As I look back over my friends, I can remember only a few of this kind and a good many of the more capable sort. One especial friend I had. His name was S. V.Harkness, and from the first of our acquaintance he seemed to have every confidence in me.

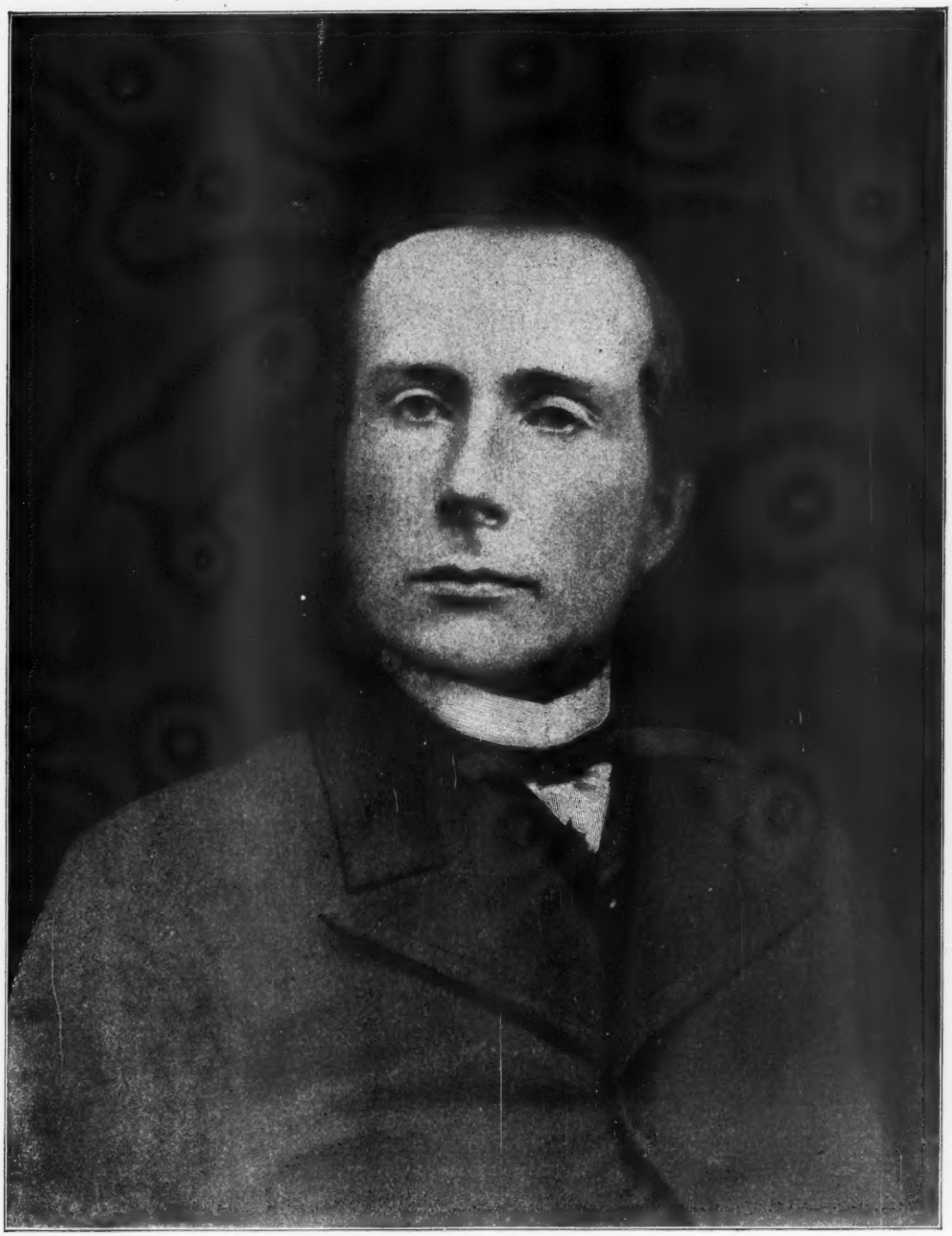
One day our oil warehouses and refinery burned to the ground in a few hours — they were absolutely annihilated. Though they were insured for many hundred thousands of dollars, of course, we were apprehensive about collecting such a large amount of insurance, and feared it might take some time to arrange. That plant had to be rebuilt right away, and it was necessary to lay the financial plans. Mr. Harkness was interested with us in the business, and I said to him:

"I may want to call upon you for the use of some money. I don't know that we shall need it, but I thought I 'd speak to you in advance about it."

He took in the situation without much explaining on my part. He simply heard what I had to say and he was a man of very few words.

"All right, J. D., I 'll give you all I 've got." This was all he said, but I went home that night relieved of anxiety. As it turned out, we received the check of the Liverpool, London & Globe Insurance Company for the full amount before the builders required the payments; and while we did n't need his money, I never shall forget the whole-souled way in which he offered it.

And this sort of experience was not, I am grateful to say, rare with me. I was always a great borrower in my early days; the busi-

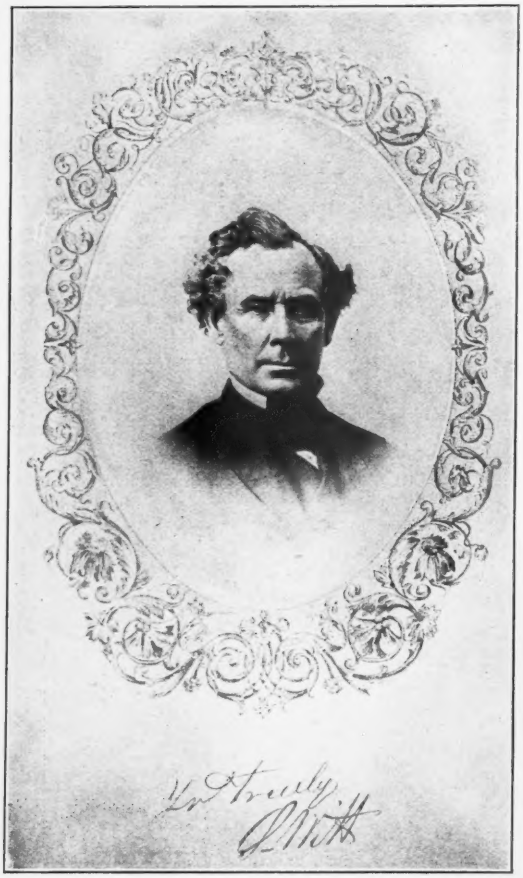


MR. JOHN D. ROCKEFELLER IN 1865
From a photograph, hitherto unpublished, by E. Decker

ness was active and growing fast, and the banks seemed very willing to loan me the money. About this time, when our great fire had brought up some new conditions, I was studying the situation to see what our cash requirements would be. We were accustomed to prepare for financial emergencies long before we needed the funds.

Another incident occurred at this time which showed again the kind of real friends we had in those days, but I did not hear the full story of it until long years after the event.

There was one bank where we had done a great deal of business, and a friend of mine, Mr. Stillman Witt, who was a rich man, was one of the directors. At a meeting, the question came up as to what the bank would do in case we wanted more money. In order that no one might doubt his own position on the subject, Mr. Witt called for his strong box, and said:

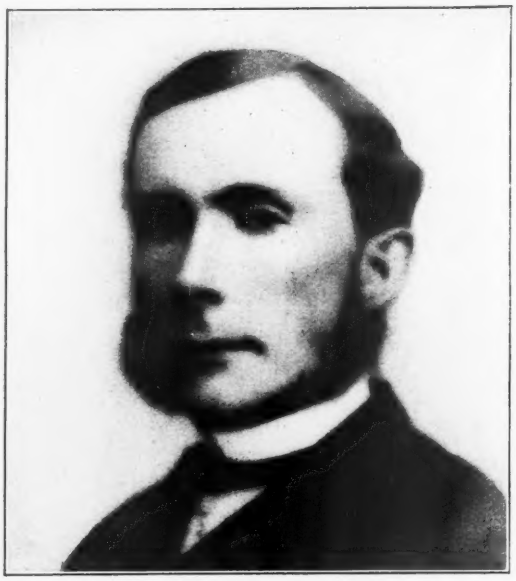


MR. STILLMAN WITT

When Mr. Rockefeller once approached the bank in which Mr Witt was a director, asking for more money, the latter put before the other directors his own strong-box, saying he wished to see the bank make the desired loan without hesitation, "and if you want more security, here it is"

"Here, gentlemen, these young men are all O. K., and if they want to borrow more money I want to see this bank advance it without hesitation, and if you want more security, here it is; take what you want."

We were then shipping a large quantity of oil by lake and canal, to save in transportation, and it took additional capital to carry these



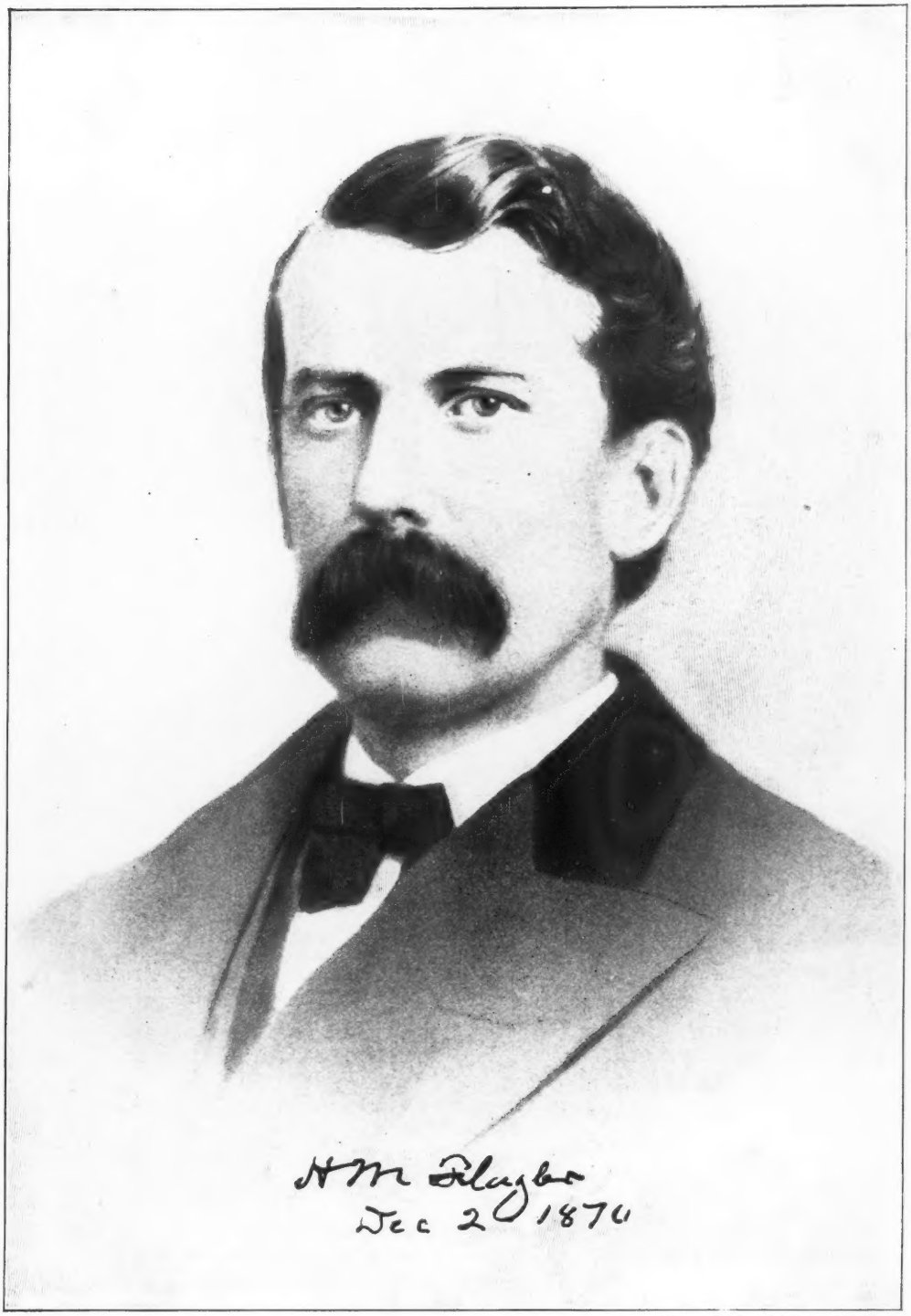
MR. ROCKEFELLER IN 1867

shipments; and we required to borrow a large amount of money. We had already made extensive loans from another bank, whose president informed me that his board of directors had been making inquiries respecting our large line of discounts, and had stated that they would probably want to talk with me on the

Photograph by John A. Mather, Titusville, Pa.

MR JOHN D. ARCHBOLD IN 1872

About the time when Mr. Rockefeller's attention was first caught by his "$4.00 a bbl." slogan



From a photograph hitherto unpublished

MR. HENRY M. FLAGLER IN 1870

One of Mr. Rockefeller's earliest partners. "He invariably wanted to go ahead and accomplish great projects of all kinds, he was always on the active side of every question, and to his wonderful energy is due much of the rapid progress of the Company in the early days"

VISIT OF 400 BUSINESS MEN OF CLEVE-

subject. I answered that I would be very glad of the opportunity to meet the board, as we would require a great deal more money from the bank. Suffice it to say, we got all we wanted, but I was not asked to call for any further explanations.

But I fear I am telling too much about banks and money and business. I know of nothing more despicable and pathetic than a man who devotes all the waking hours of the day to making money for money's sake. If I were forty years younger, I should like to go into business again, for the association with interesting and quick-minded men was always a great pleasure. But I have no dearth of interests to fill my days and so long as I live I expect to go on and develop the plans which have been my inspiration for a lifetime.

During all the long period of work, which lasted from the time I was sixteen years old until I retired from active business when I was fifty-five, I must admit that I managed to get a good many vacations of one kind or another, because of the willingness of my most efficient associates to assume the burdens of the business which they were so eminently qualified to conduct.

Of detail work I feel I have done my full

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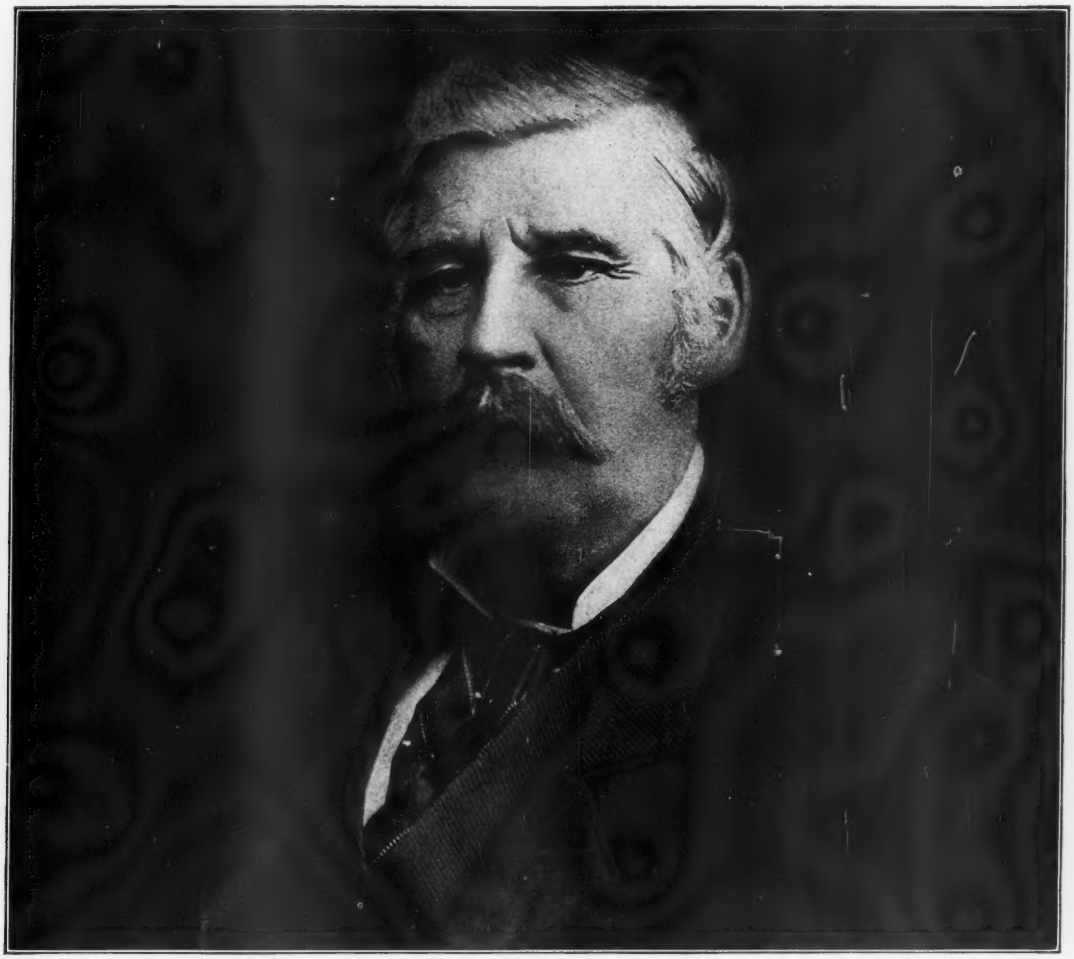
LAND TO MR. ROCKEFELLER'S HOME

share. As I began my business life as a bookkeeper, I learned to have great respect for figures and facts, no matter how small they were. When there was a matter of accounting to be done in connection with any plan with which I was associated in the earlier years, I usually found that I was selected to undertake it. I had a passion for detail which afterward I was forced to strive to modify.

At Pocantico Hills, New York, where I have spent portions of my time for many years in an old house where the fine views invite the soul and where we can live simply and quietly, I have spent many delightful hours, studying the beautiful views, the trees, and fine landscape effects of that very interesting section of the Hudson River, and this happened in the days when I seemed to need every minute for the absorbing demands of business. So I fear after I got well started, I was not what might be called a diligent business man.

This phrase, "diligent in business," reminds me of an old friend of mine in Cleveland who was devoted to his work. I talked to him, and no doubt bored him unspeakably, on my special hobby, which has always been what some people call landscape gardening, but which with me is the art of laying out roads

MR. JOHN D. ROCKEFELLER IN 1884



Photographed in 1888 by Edmondson

MR. S. V. HARKNESS

Whose reply, when Mr. Rockefeller went to him about a loan, was, "All right, J. D. I'll give you all I've got"

and paths and work of that kind. This friend of thirty-five years ago plainly disapproved of a man in business wasting his time on what he looked upon as mere foolishness.

One superb spring day I suggested to him that he should spend the afternoon with me (a most unusual and reckless suggestion for a business man to make in those days) and see some beautiful paths through the woods on my place which I had been planning and had about completed. I went so far as to tell him that I would give him a real treat.

"I cannot do it, John," he said, "I have an important matter of business on hand this afternoon."

"That may all be," I urged, "but it will give you no such pleasure as you 'll get when you see those paths — the big tree on each side and ——"

"Go on, John, with your talk about trees and paths. I tell you I 've got an ore ship coming in and our mills are waiting for her." He rubbed his hands with satisfaction — "I 'd not miss seeing her come in for all the wood paths in Christendom." He was then getting $120 to $130 a ton for Bessemer steel rails and if his mill were stopped a minute waiting for ore, he felt that he was missing his life's chance.

Perhaps it was this same man who often gazed out into the lake with every nerve stretched to try to see an ore ship approaching. One day one of his friends asked him if he could see the boat.

"No-o, no-o," he reluctantly admitted, "but she 's most in sight."

This ore trade was of great and absorbing interest at Cleveland. My old employer was paid $4 a ton for carrying ore from the Marquette regions fifty years ago, and to think of the wickedness of this maker of woodland paths, who in later years was moving the ore in great ships for eighty cents a ton and making a fortune at it.

All this reminds me of my experiences in the ore business, but I shall come to that later. I want to say something about landscape gardening, to which I have devoted a great deal of time for more than thirty years.

Photograph by J. E. McGue

VISIT OF A COMMITTEE FROM THE CHAMBER OF COMMERCE, JULY 25, 1896

Upon the presentation by Mr. Rockefeller of what is now known as Rockefeller Park, in Cleveland. The group includes the late Senator M. A. Hanna and Hon. Henry Clay Evans of Tennessee

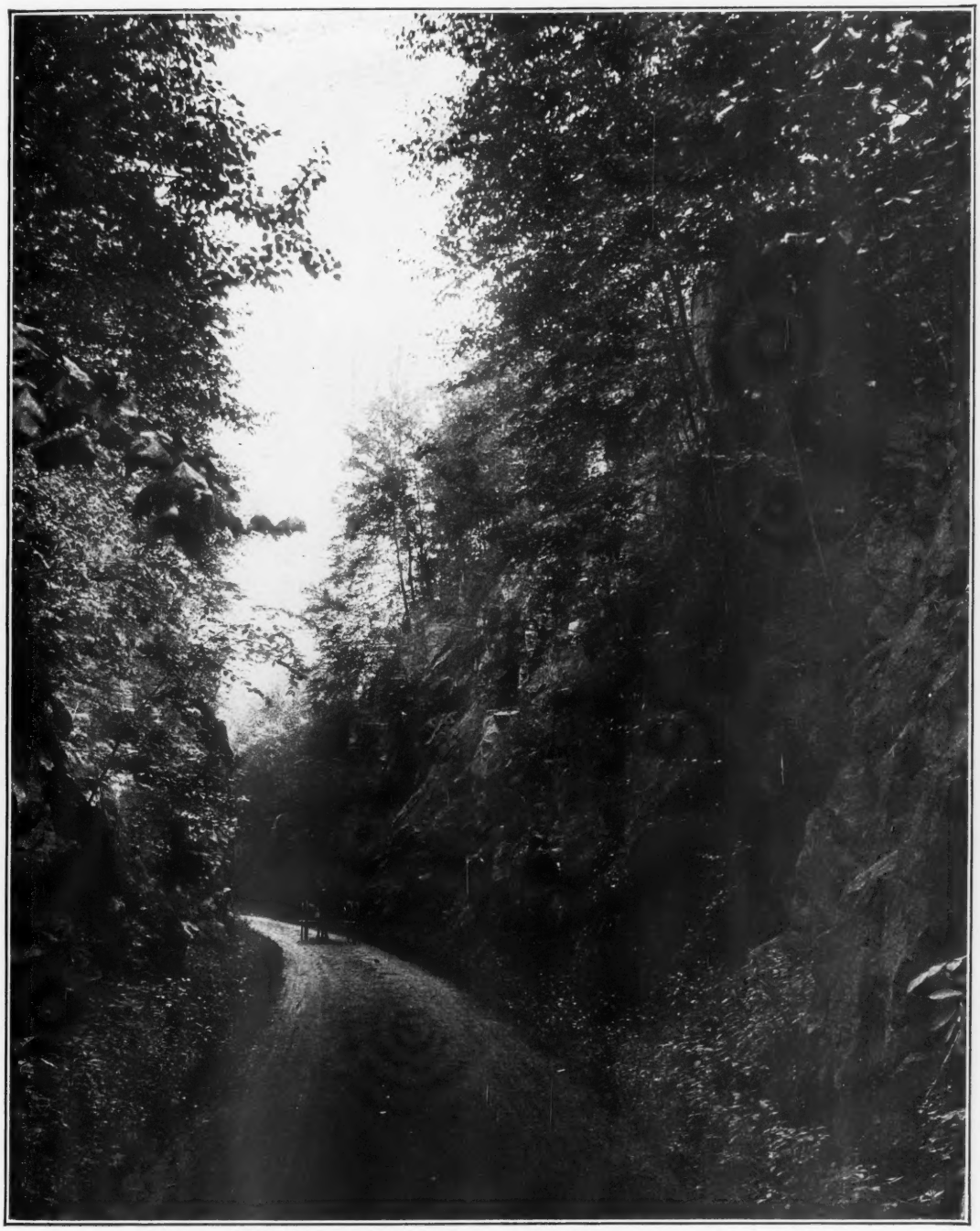
THE PLEASURES OF ROAD PLANNING

Like my old friend, others may be surprised at my claim to be an amateur landscape architect in a small way, and my family have been known to employ a great landscape man to make quite sure that I did not ruin the place. The problem was, just where to put the new home at Pocantico Hills, which is now building. I thought I had the advantage of knowing every foot of the land, all the old big trees were personal friends of mine, and with the views at any given point I was perfectly familiar—I had studied them hundreds of times; and after this great landscape architect had laid out his plans and had driven his lines of stakes, I asked if I might see what I could do with the job.

In a few days I had worked out a plan so devised that the roads caught just the best views at just the angles where in driving up the hill you came upon impressive outlooks, and at the ending was the final burst of river, hill, cloud, and great sweep of country to crown the whole; and here I fixed my stakes to show where I suggested that the roads should run, and finally the exact place where the house should be.

"Look it all over," I said, "and decide which plan is best." It was a proud moment when this real authority accepted my suggestions as bringing out the most favored spots for views and agreed upon the site of the house. How many miles of roads I have laid out in my time, I can hardly compute, but I have often kept at it until I was exhausted. While surveying roads, I have run the lines until darkness made it impossible to see the little stakes and flags. It is all very vain of me to tell of these landscape enterprises, but perhaps they will offset the business talks which occupy so much of my story.

My methods of attending to business matters differed from those of most well-conducted merchants of my time and allowed me more freedom. Even after the chief affairs of the



ONE OF THE DRIVES PERSONALLY LAID OUT BY MR. ROCKEFELLER
Where it leads through a rock cut fifty feet deep

Standard Oil Company were moved to New York, I spent most of my summers at our home in Cleveland, and I do still. I would come to New York when my presence seemed necessary, but for the most part I kept in touch with the business through our own telegraph wires, and was left free to attend to many things which interested me — among others,

the making of paths, the planting of trees, and the setting out of little forests of seedlings.

Of all the profitable things which develop quickly under the hand, I have thought my young nurseries show the greatest yield. We keep a set of account books for each place, and I was amazed not long ago at the increase in value that a few years make in growing things, when we came to remove some young

A FAVORITE GLIMPSE OF THE HUDSON
From Mr. Rockefeller's new home at Pocantico Hills

trees from Westchester County to Lakewood, New Jersey. We plant our young trees, especially evergreens, by the thousand — I think we have put in as many as ten thousand at once, and let them develop, to be used later in some of our planting schemes. If we transfer young trees from Pocantico to our home in Lakewood, we charge one place and credit the other for these trees at the market

A DRIVE ON MR. ROCKEFELLER'S PLACE
Showing the stone wall built to hide the railroad

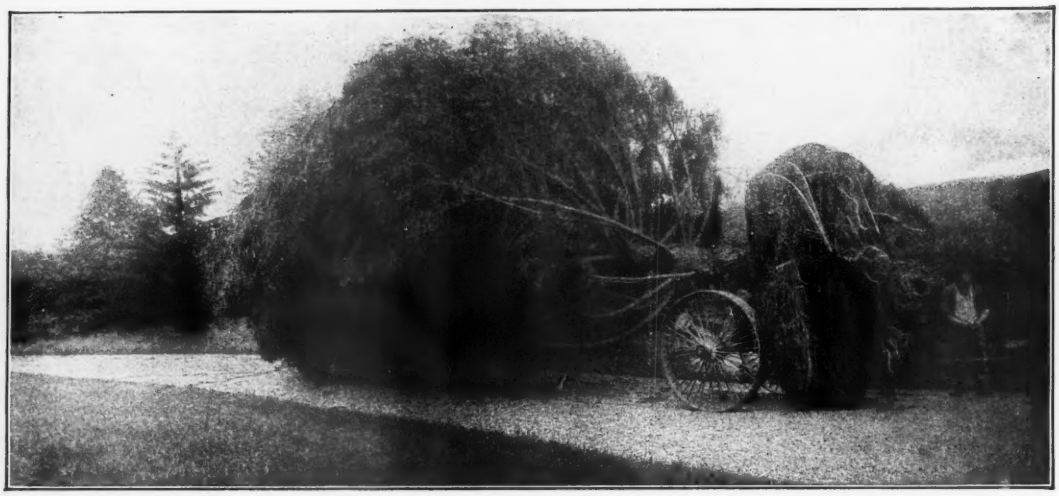
A PLANTING OF ORCHIDS AT POCANTICO

rate. We are our own best customers, and we make a small fortune out of ourselves by selling to our New Jersey place at $1.50 or $2.00 each, trees which originally cost us only five or ten cents at Pocantico.

In nursery stock, as in other things, the advantage of doing things on a large scale reveals itself. The pleasure and satisfaction of saving and moving large trees — trees, say, from ten to twenty inches in diameter, or even more in some cases — has been for years a source of great interest. We build our movers ourselves, and work with our own men, and it is truly surprising what liberties you can take with trees, if you once learn how to handle these monsters. We have moved trees ninety feet high, and many seventy or eighty feet. And they naturally are by no means young. At one time or another we have tried almost all kinds of trees, including some which the authorities said could not be moved with success. Perhaps the most daring experiments were with horse-chestnuts. We took up large trees, transported them considerable distances, some of them after they were actually in flower, all at a cost of twenty dollars per tree, and lost very few. We were so successful that we became rather reckless, trying experiments out of season, but when we worked on plans we had already tried, our results were remarkably satisfactory.

Taking our experiences in many hundreds of trees of various kinds in and out of season, and including the time when we were learning the art, our total loss has been something less than 10 per cent., probably more nearly 6 or 7 per cent. A whole tree-moving campaign in a single season has been accomplished with a loss of about 3 per cent. I am willing to admit that in the case of the larger trees the growth has been retarded perhaps two years, but this is a small matter, for people no longer young wish to get the effects they desire at once, and the modern tree-mover does it. We have grouped and arranged clumps of big spruces to fit the purposes we were aiming

THE TWELFTH HOLE ON MR. ROCKEFELLER'S GOLF LINKS AT POCANTICO HILLS



MOVING A SPRUCE TREE FIFTY FEET HIGH AND TWO FEET IN DIAMETER

for, and sometimes have completely covered a hillside with them. Oaks we have not been successful with except when comparatively young, and we don't try to move oaks and hickories when they have come near to maturity; but we have made some successful experiments with bass wood, and one of these we have moved three times without injury. Birches have generally baffled us, but evergreens, except cedars, have been almost invariably successfully handled.

This planning for good views must have been an early passion with me. I remember when I was hardly more than a boy I wanted to cut away a big tree which I thought interfered with the view from the windows of the dining-room of our home. I was for cutting it down, but some other members of the family objected, though my dear mother, I think, sympathized with me, as she said one day: "You know, my son, we have breakfast at eight o'clock, and I think if the tree were felled some time before we sat down to table, there would probably be no great complaint when the family saw the view which the fallen tree revealed."

So it turned out.

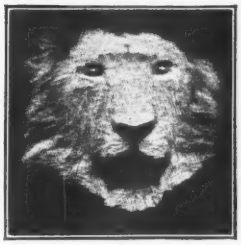
MOVING LARGE TREES ON THE POCANTICO HILLS ESTATE

"A whole tree-moving campaign in a single season has been accomplished with a loss of but three per cent.

THE LIONS THAT STOPPED A RAILROAD

HEADS OF LIONS

KILLED BY AUTHOR



THE EXTRAORDINARY EXPERIENCE OF AN ENGLISH ARMY ENGINEER ON THE UGANDA RAILROAD IN EAST AFRICA — NEARLY FORTY MEN EATEN BY LIONS AND THE CONSTRUCTION WORK HALTED FOR WEEKS — "THE MOST REMARKABLE ACCOUNT OF WHICH WE HAVE ANY RECORD"

BY

LIEUTENANT-COLONEL J. H. PATTERSON

This straightforward story by Colonel Patterson of his brave and most extraordinary experience with man-eating lions, while he was in charge of the construction of a part of the Uganda Railway in British East Africa, will be published in several successive numbers of THE WORLD'S WORK, *through the kind permission of the Messrs. Macmillan. The famous African hunter, Mr. F. C. Selous, wrote the introduction that follows:*

"My own long experience of African hunting told me at once that every word in this thrilling narrative was absolutely true. Nay more, I knew that the author had told his story in a most modest manner, laying but little stress on the dangers he had run when sitting up at nights to try and compass the death of the terrible man-eaters, especially on that one occasion when, whilst watching from a very light scaffolding, supported only by four rickety

Photograph by Schillings from "Flashlights in the Jungle"

AN AFRICAN LION IN THE JUNGLE AT NIGHT

THE JUNGLE THROUGH WHICH THE RAILROAD RUNS
Whitish, leafless, dwarf trees, underbrush, and thorns making a practically impenetrable jungle

TYPES OF THE HINDU WORKMEN
Behind them is the *boma*, or thorn fence built around the camps, as a protection against the lions

poles, he was himself stalked by one of the dread beasts. Fortunately he did not lose his nerve and succeeded in shooting the lion, just when it was on the point of springing upon him. But had this lion approached him from behind, I think it would probably have added Colonel Patterson to its long list of victims, for in my own experience I have known of three

Photograph from the Tjader Expedition to East Africa 1906 of the American Museum of Natural History

A PIECE OF THE JUNGLE ALONG THE UGANDA RAILWAY
This thick, thorny growth made it impossible to hunt the lions

A SMALL PALM HUT AT TSAVO

Left by some previous traveler, where Colonel Patterson spent his first night in the lion country

WHERE A LION ATTACKED THREE MEN

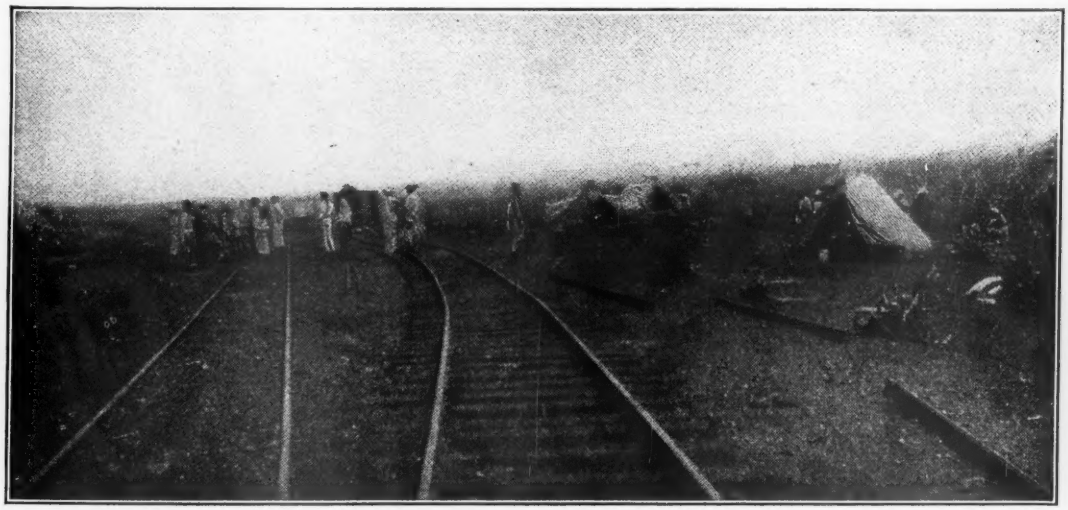
He carried off one. The other two are lying wounded under a piece of canvas in front of the tent

instances of men having been pulled from trees or huts built on platforms at a greater height from the ground than the crazy structure on which Colonel Patterson was watching on that night of terrors.

"From the time of Herodotus until to-day, lion stories innumerable have been told and written. I have put some on record myself. But no lion story I have ever heard or read equals in its long-sustained and dramatic interest the story of the Tsavo man-eaters, as told by Colonel Patterson. A lion story is usually a tale of adventures, often very terrible and pathetic, which occupied but a few hours of one night; but the tale of the Tsavo man-eaters is an epic of terrible tragedies spread out over several months, and only at last brought to an end by the resource and determination of one man.

"It was some time after I read the first account published of the Tsavo man-eaters that I made the acquaintance of President Roosevelt. I told him all I remembered about it, and he was so deeply interested in the story — as he is in all true stories of the nature and characteristics of wild animals — that he begged me to send him the short printed account. This I did; and it was only in the last letter I received from him that, referring to this story, President Roosevelt wrote:

"'I think that the incident of the Uganda man-eating lions, described in those two



THE TENT FROM WHICH UNGAN SINGH, ONE OF THE HEAD WORKMEN, WAS CARRIED OFF BY A LION

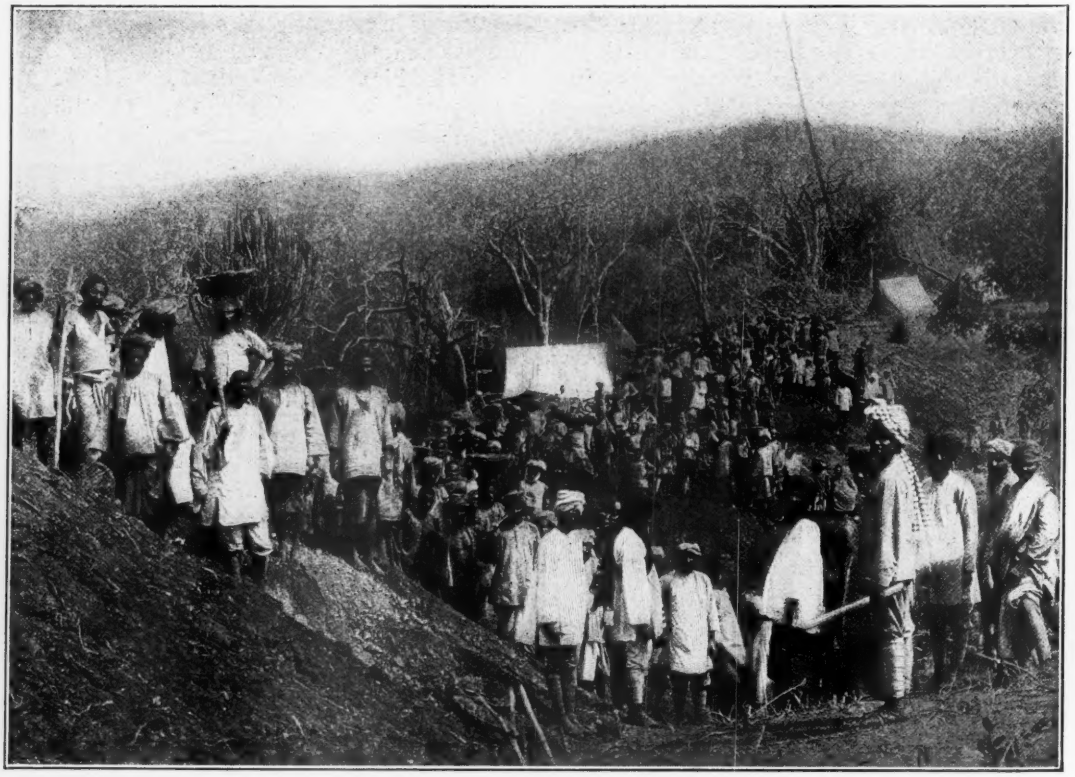
COLONEL PATTERSON'S TENT AT TSAVO
In which he was awakened one night by a lion tumbling about among the ropes on the outside of the tent

HIS LATER HEADQUARTERS
A hut surrounded by a *boma* to which Colonel Patterson moved after the lion visited his tent

articles you sent me, is the most remarkable account of which we have any record. It is a great pity that it should not be preserved in permanent form.'

"Well, I am now glad to think that it will be preserved in permanent form; and I venture to assure Colonel Patterson that President Roosevelt will be amongst his most interested readers.

"The account given by Colonel Patterson of how he overcame all the difficulties which confronted him in building a strong and per-



RAILHEAD CAMP WHERE THERE WERE MORE THAN TWO THOUSAND LABORERS
The two man-eating lions killed nearly forty of these men

manent railway bridge across the Tsavo River makes excellent reading; whilst the courage he displayed in attacking, single-handed, lions, rhinoceroses, and other dangerous animals was surpassed by the pluck, tact, and determination he showed in quelling the formidable mutiny which once broke out amongst his native Indian workers.

"Finally, let me say that I have spent the best part of two nights reading the proof-sheets of Colonel Patterson's narrative, and I can assure him that the time passed like magic. My interest was held from the first page to the last, for I felt that every word I read was true."

COLONEL PATTERSON'S PREFACE

"I have no doubt that many of my readers, who have perhaps never been very far away from civilization, will be inclined to think that some of the incidents are exaggerated. I can only assure them that I have toned down the facts rather than otherwise, but have endeavored to write a perfectly plain and straightforward account of things as they actually happened."

IT WAS toward noon on March 1, 1898, that I first found myself entering the narrow and somewhat dangerous harbor of Mombasa, on the east coast of Africa. The town lies on an island of the same name, separated from the mainland only by a very narrow channel, which forms the harbor; and as our vessel steamed slowly in, close under the quaint old Portuguese fortress built over three hundred years ago, I was much struck with the strange beauty of the view which gradually opened out before me. Contrary to my anticipation, everything looked fresh and green, and an oriental glamour of enchantment seemed to hang over the island. The old town was bathed in brilliant sunshine and reflected itself lazily on the motionless sea; its flat roofs and dazzlingly white walls peeped out dreamily between waving palms and lofty cocoanuts, huge baobabs and spreading mango trees; and the darker background of well-wooded hills and slopes on the mainland formed a very effective setting to a beautiful and, to me, unexpected picture.

Now, my object in coming out to East Africa at this time was to take up a position to which I had been appointed by the Foreign Office on the construction staff of the Uganda Railway. As soon as I landed, therefore, I inquired from one of the Customs officials where the headquarters of the railway were to be found, and was told that they were at a place called Kilindini, some three miles away, on the other side of the island. The best way to get there, I was further informed, was by *gharri*, which I found to be a small trolley, having two seats placed back to back under a little canopy and running on narrow rails which are laid through the principal street of the town. Accordingly, I secured one of these vehicles, which are pushed by two strapping Swahili boys, and was soon flying down the track, which once outside the town lay for the most part through dense groves of mango, baobab, banana, and palm trees, with here and there brilliantly colored creepers hanging in luxuriant festoons from the branches.

On arrival at Kilindini, I made my way to the railway offices and was informed that I should be stationed inland and should receive further instructions in the course of a day or two. Meanwhile I pitched my tent under some shady palms near the *gharri* line, and busied myself in exploring the island and in procuring the stores and the outfit necessary for a lengthy sojourn up-country.

Kilindini is, as I have said, on the opposite side of the island, and as its name — "the place of deep waters" — implies, has a much finer harbor than that possessed by Mombasa. The channel between the island and the mainland is here capable of giving commodious and safe anchorage to the very largest vessels, and as the jetty is directly connected with the Uganda Railway, Kilindini has now really become the principal port, being always used by the liners and heavier vessels.

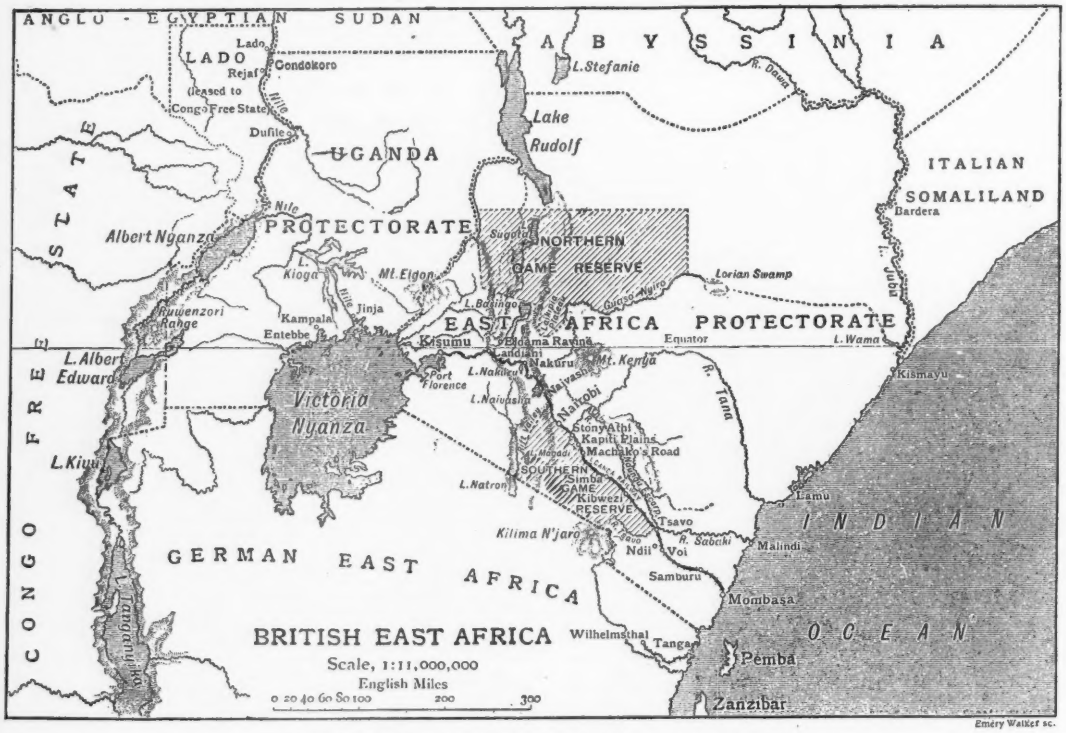
OFF TO THE INTERIOR

I had spent nearly a week in Mombasa, and was becoming very anxious to get my marching orders, when one morning I was delighted to receive an official letter instructing me to proceed to Tsavo, about one hundred and thirty-two miles from the coast, and to take charge of the construction of the section of the line at that place, which had just then been reached by railhead. I accordingly started at daylight next morning in a special train with Mr. Anderson, the Superintendent of Works, and Dr. McCulloch, the principal medical officer; and as the country was in every way new to me, I found the journey a most interesting one.

For twenty miles after reaching the main-

land, our train wound steadily upward through beautifully wooded, park-like country, and on looking back out of the carriage windows we could every now and again obtain lovely views of Mombasa and Kilindini, while beyond these the Indian Ocean sparkled in the glorious sunshine as far as the eye could see. The summit of the Rabai Hills having been reached, we entered on the expanse of the Taru Desert, a wilderness covered with poor scrub and stunted trees, and carpeted in the dry season with a layer of fine red dust. This dust is of

in the character of the country was that the color of the dust had changed. As our train sped onward through the level uplands we saw a fine ostrich striding along parallel with the line, as if having a race with us. Dr. McCulloch at once seized his rifle and by a lucky shot brought down the huge bird; the next and greater difficulty, however, was to secure the prize. For a time the engine-driver took no notice of our signals and shouts, but at last we succeeded in attracting his attention, and the train was shunted back to



THE ROUTE OF THE UGANDA RAILWAY

Tsavo, where Colonel Patterson was building the railroad bridge, is about 135 miles from Mombasa

a most penetrating character, and finds its way into everything in the carriage as the train passes along. From here onward game is more or less plentiful, but the animals are very difficult to see owing to the thick undergrowth in which they hide themselves. We managed, however, to catch sight of a few from the carriage windows, and also noticed some of the natives, the Wa Nyika, or "children of the wilderness."

At Maungu, some eighty miles from the coast, we came to the end of this "desert," but almost the only difference to be noticed

where the ostrich had fallen. We found it to be an exceptionally fine specimen, and had to exert all our strength to drag it on board the train.

Soon after this we reached Voi, about a hundred miles from the coast, and as this was the most important station on the line that we had yet come to, we made a short halt in order to inspect some construction work which was going on. On resuming our journey, we soon discovered that a pleasant change had occurred in the character of the landscape. From a place called N'dii, the railway runs

for some miles through a beautifully wooded country, which looked all the more inviting after the deadly monotony of the wilderness through which we had just passed. To the south of us could be seen the N'dii range of mountains, the dwelling-place of the Wa Taita people, while on our right rose the rigid brow of the N'dungu Escarpment, which stretches away westward for scores of miles. Here our journey was slow, as every now and again we stopped to inspect the permanent works in progress; but eventually, toward dusk, we arrived at our destination, Tsavo.

MY FIRST NIGHT IN THE LIONS' RANGE

I slept that night in a little palm hut which had been built by some previous traveler, and which was fortunately unoccupied for the time being. It was rather broken-down and dilapidated, not even possessing a door, and as I lay on my narrow camp bed I could see the stars twinkling through the roof.

I little knew then what adventures awaited me in this neighborhood; and if I had realized that at that very time two savage brutes were prowling round, seeking whom they might devour, I hardly think I should have slept so peacefully in my rickety shelter.

Next morning I was up betimes, eager to make acquaintance with my new surroundings. My first impression on coming out of my hut was that I was hemmed in on all sides by a dense growth of impenetrable jungle; and on scrambling to the top of a little hill close at hand, I found that the whole country as far as I could see was covered with low, stunted trees, thick undergrowth and "wait-a-bit" thorns. The only clearing, indeed, appeared to be where the narrow track for the railway had been cut.

This interminable *nyika*, or wilderness of whitish and leafless dwarf trees, presented a ghastly and sun-stricken appearance; and here and there a ridge of dark-red, heat-blistered rock jutted out above the jungle, and added by its rugged barrenness to the dreariness of the picture. Away to the northeast stretched the unbroken line of the N'dungu Escarpment, while far off to the south I could just catch a glimpse of the snow-capped top of towering Kilima N'jaro. The one redeeming feature of the neighborhood was the river from which Tsavo takes its name. This is a swiftly flowing stream, always cool and always running, the latter being an exceptional attribute in this part of East Africa; and the fringe of lofty green trees along its banks formed a welcome relief to the general monotony of the landscape.

When I had thus obtained a rough idea of the neighborhood, I returned to my hut, and began in earnest to make preparations for my stay in this out-of-the-way place. The stores were unpacked, and my "boys" pitched my tent in a little clearing close to where I had slept the night before and not far from the main camp of the workmen. Railhead had at this time just reached the western side of the river, and some thousands of Indian coolies and other workmen were encamped there. As the line had to be pushed on with all speed, a diversion had been made and the river crossed by means of a temporary bridge. My principal work was to erect the permanent structure, and to complete all the other works for a distance of thirty miles on each side of Tsavo. I accordingly made a survey of what had to be done, and sent my requisition for labor, tools, and material to the headquarters at Kilindini. In a short time workmen and supplies came pouring in, and the noise of hammers and sledges, drilling and blasting, echoed merrily through the district.

HOW THE LIONS CAUGHT THEIR VICTIMS

Unfortunately this happy state of affairs did not continue for long, and our work was soon interrupted in a rude and startling manner. Two most voracious and insatiable man-eating lions appeared upon the scene, and for over nine months waged an intermittent warfare against the railway and all those connected with it in the vicinity of Tsavo. This culminated in a perfect reign of terror in December, 1898, when they actually succeeded in bringing the railway works to a complete standstill for about three weeks. At first they were not always successful in their efforts to carry off a victim, but as time went on they stopped at nothing and indeed braved any danger in order to obtain their favorite food.

Their methods then became so uncanny, and their man-stalking so well-timed and so certain of success, that the workmen firmly believed that they were not real animals at all, but devils in lions' shape. Many a time the coolies solemnly assured me that it was absolutely useless to attempt to shoot them. They were quite convinced that the angry spirits of

two departed native chiefs had taken this form in order to protest against a railway being made through their country, and by stopping its progress to avenge the insult thus shown to them.

I had only been a few days at Tsavo when I first heard that these brutes had been seen in the neighborhood. Shortly afterward one or two coolies mysteriously disappeared, and I was told that they had been carried off by night from their tents and devoured by lions. At the time I did not credit this story, and was more inclined to believe that the unfortunate men had been the victims of foul play at the hands of some of their comrades. They were, as it happened, very good workmen, and had each saved a fair number of rupees, so I thought it quite likely that some scoundrels from the gangs had murdered them for the sake of their money. This suspicion, however, was very soon dispelled. About three weeks after my arrival, I was roused one morning about daybreak and told that one of my *jemadars*, a fine powerful Sikh named Ungan Singh, had been seized in his tent during the night and dragged off and eaten.

Naturally I lost no time in making an examination of the place, and was soon convinced that the man had indeed been carried off by a lion, as its "pug" marks were plainly visible in the sand, while the furrows made by the heels of the victim showed the direction in which he had been dragged away. Moreover, the *jemadar* shared his tent with half a dozen other workmen, and one of his bedfellows had actually witnessed the occurrence.

He graphically described how, at about midnight, the lion suddenly put its head in at the open tent door and seized Ungan Singh — who happened to be nearest the opening — by the throat.

The unfortunate fellow cried out "*Choro*" ("Let go"), and threw his arms up round the lion's neck.

The next moment he was gone, and his panic-stricken companions lay helpless, forced to listen to the terrible struggle which took place outside. Poor Ungan Singh must have died hard; but what chance had he? As a coolie gravely remarked, "Was he not fighting with a lion?"

On hearing this dreadful story I at once set out to try to track the animal, and was accompanied by Captain Haslem, who happened to be staying at Tsavo at the time, and who, poor fellow, himself met with a tragic fate very shortly afterward. We found it an easy matter to follow the route taken by the lion, as he appeared to have stopped several times before beginning his meal.

Pools of blood marked these halting-places, where he doubtless indulged in the man-eaters' habit of licking the skin off so as to get at the fresh blood. (I have been led to believe that this is their custom from the appearance of two half-eaten bodies which I subsequently rescued: the skin was gone in places, and the flesh looked dry, as if it had been sucked.)

On reaching the spot where the body had been devoured, a dreadful spectacle presented itself. The ground all round was covered with blood and morsels of flesh and bones, but the unfortunate *jemadar's* head had been left intact, save for the holes made by the lion's tusks on seizing him, and lay a short distance away from the other remains, the eyes staring wide open with a startled, horrified look in them. The place was considerably cut up, and on closer examination we found that two lions had been there and had probably struggled for possession of the body.

It was the most gruesome sight I had ever seen. We collected the remains as well as we could and heaped stones on them, the head with its fixed, terrified stare seeming to watch us all the time, for it we did not bury, but took back to camp for identification before the medical officer.

Thus occurred my first experience of man-eating lions, and I vowed there and then that I would spare no pains to rid the neighborhood of the brutes. I little knew the trouble that was in store for me, or how narrow were to be my own escapes from sharing poor Ungan Singh's fate.

ALL-NIGHT WATCHES IN TREES

That same night I sat up in a tree close to the late *jemadar's* tent, hoping that the lions would return to it for another victim. I was followed to my perch by a few of the more terrified coolies, who begged to be allowed to sit up in the tree with me; all the other workmen remained in their tents, but no more doors were left open.

I had with me my .303 and a 12-bore shot gun, one barrel loaded with ball and the other with slug. Shortly after settling down to my vigil, my hopes of bagging one of the brutes were raised by the sound of their ominous

roaring coming closer and closer. Presently this ceased, and quiet reigned for an hour or two, as lions always stalk their prey in complete silence.

All at once, however, we heard a great uproar and frenzied cries coming from another camp about half a mile away; we knew then that the lions had seized a victim there, and that we should see or hear nothing further of them that night.

Next morning I found that one of the brutes had broken into a tent at Railhead Camp — whence we had heard the commotion during the night — and had made off with a poor wretch who was lying there asleep.

After a night's rest, therefore, I took up my position in a suitable tree near this tent. I did not at all like the idea of walking the half-mile to the place after dark, but all the same I felt fairly safe, as one of my men carried a bright lamp close behind me. He in his turn was followed by another leading a goat, which I tied under my tree in the hope that the lion might be tempted to seize it instead of a coolie. A steady drizzle commenced shortly after I had settled down to my night of watching, and I was soon thoroughly chilled and wet.

I stuck to my uncomfortable post, however, hoping to get a shot, but I well remember the feeling of impotent disappointment I experienced when about midnight I heard screams and cries and a heartrending shriek, which told me that the man-eaters had again eluded me and had claimed another victim elsewhere.

At this time the various camps for the workmen were very scattered, so that the lions had a range of some eight miles on either side of Tsavo to work upon; and as their tactics seemed to be to break into a different camp each night, it was most difficult to forestall them. They almost appeared, too, to have an extraordinary and uncanny faculty of finding out our plans beforehand, so that no matter in how likely or how tempting a spot we lay in wait for them, they invariably avoided that particular place and seized their victim for the night from some other camp.

IMPOSSIBLE TO HUNT THEM IN DAYLIGHT

Hunting them by day, moreover, in such a dense wilderness as surrounded us, was an exceedingly tiring and really foolhardy undertaking. In a thick jungle of the kind round Tsavo, the hunted animal has every chance against the hunter, as, however careful the latter may be, a dead twig or something of the sort is sure to crackle just at the critical moment and so give the alarm. Still, I never gave up hope of some day finding their lair, and accordingly continued to devote all my spare time to crawling about through the undergrowth. Many a time when attempting to force my way through this bewildering tangle I had to be released by my gun-bearer from the fast clutches of the "wait-a-bit"; and often with immense pains I succeeded in tracing the lions to the river after they had seized a victim, only to lose the trail from there onwards, owing to the rocky nature of the ground which they seemed to be careful to choose in retreating to their den.

At this early stage of the struggle, I am glad to say, the lions were not always successful in their efforts to capture a human being for their nightly meal, and one or two amusing incidents occurred to relieve the tension from which our nerves were beginning to suffer.

On one occasion an enterprising *bunniah* (Indian trader) was riding along on his donkey late one night, when suddenly a lion sprang out on him, knocking over both man and beast. The donkey was badly wounded, and the lion was just about to seize the trader, when in some way or other his claws became entangled in a rope by which two empty oil tins were strung across the donkey's neck. The rattle and clatter made by these as he dragged them after him gave him such a fright that he turned tail and bolted off into the jungle, to the intense relief of the terrified *bunniah*, who quickly made his way up the nearest tree and remained there, shivering with fear, for the rest of the night.

Shortly after this episode, a Greek contractor named Themistocles Pappadimitrini had an equally marvelous escape. He was sleeping peacefully in his tent one night, when a lion broke in, and seized and made off with the mattress on which he was lying. Though rudely awakened, the Greek was quite unhurt and suffered from nothing worse than a bad fright. This same man, however, met with a melancholy fate not long afterward. He had been to the Kilima N'jaro district to buy cattle, and on the return journey attempted to take a short cut across country to the railway, but perished miserably of thirst on the way.

On another occasion fourteen coolies who slept together in a large tent were one night awakened by a lion suddenly jumping on to the tent and breaking through it. The brute landed with one claw on a coolie's shoulder,

which was badly torn; but instead of seizing the man himself, in his hurry he grabbed a large bag of rice which happened to be lying in the tent, and made off with it, dropping it in disgust some little distance away when he realised his mistake.

These, however, were only the earlier efforts of the man-eaters. Later on, as will be seen, nothing flurried or frightened them in the least, and except as food they showed a complete contempt for human beings. Having once marked down a victim, they would allow nothing to deter them from securing him, whether he were protected by a thick fence, or inside a closed tent, or sitting round a brightly burning fire. Shots, shouting, and firebrands they alike held in derision.

All this time my own tent was pitched in an open clearing, unprotected by a fence of any kind round it. One night when the medical officer, Dr. Rose, was staying with me, we were awakened about midnight by hearing something tumbling about among the tent ropes, but on going out with a lantern we could discover nothing. Daylight, however, plainly revealed the "pug" marks of a lion, so that on that occasion I fancy one or other of us had a narrow escape.

Warned by this experience, I at once arranged to move my quarters, and went to join forces with Dr. Brock, who had just arrived at Tsavo to take medical charge of the district. We shared a hut of palm leaves and boughs, which we had constructed on the eastern side of the river, close to the old caravan route leading to Uganda; and we had it surrounded by a circular *boma*, or thorn fence, about seventy yards in diameter, well made and thick and high. Our personal servants also lived within the enclosure, and a bright fire was always kept up throughout the night.

For the sake of coolness, Brock and I used to sit out under the verandah of this hut in the evenings; but it was rather trying to our nerves to attempt to read or write there, as we never knew when a lion might spring over the *boma*, and be on us before we were aware. We therefore kept our rifles within easy reach, and cast many an anxious glance out into the inky darkness, beyond the circle of the firelight. On one or two occasions, we found in the morning that the lions had come quite close to the fence; but fortunately they never succeeded in getting through.

By this time, too, the camps of the workmen had also been surrounded by thorn fences; nevertheless the lions managed to jump over or to break through some one or other of these, and regularly every few nights a man was carried off, the reports of the disappearance of this or that workman coming in to me with painful frequency. So long, however, as Railhead Camp — with its two or three thousand men, scattered over a wide area — remained at Tsavo, the coolies appeared not to take much notice of the dreadful deaths of their comrades. Each man felt, I suppose, that as the man-eaters had such a large number of victims to choose from, the chances of their selecting him in particular were very small. But when the large camp moved ahead with the railway, matters altered considerably.

A PANIC AMONG THE MEN

I was then left with only some few hundred men to complete the permanent works; and as all the remaining workmen were naturally camped together, the attentions of the lions became more apparent and made a deeper impression. A regular panic consequently ensued, and it required all my powers of persuasion to induce the men to stay on. In fact, I succeeded in doing so only by allowing them to knock off all regular work until they had built exceptionally thick and high *bomas* round each camp. Within these enclosures fires were kept burning all night, and it was also the duty of the night-watchman to keep clattering half a dozen empty oil tins suspended from a convenient tree. These he manipulated by means of a long rope, while sitting in safety within his tent; and the frightful noise thus produced was kept up at frequent intervals during the night in the hopes of terrifying away the man-eaters. In spite of all these precautions, however, the lions would not be denied, and men continued to disappear.

When the railhead workmen moved on, their hospital camp was left behind. It stood rather apart from the other camps, in a clearing about three-quarters of a mile from my hut, but was protected by a good thick fence and to all appearance was quite secure. It seemed, however, as if barriers were of no avail against the "demons," for before very long one of them found a weak spot in the *boma* and broke through.

On this occasion the hospital assistant had a marvelous escape. Hearing a noise outside, he opened the door of his tent and was horrified

to see a great lion standing a few yards away looking at him. The beast made a spring toward him, which gave the assistant such a fright that he jumped backward, and in doing so luckily upset a box containing medical stores. This crashed down with such a loud clatter of breaking glass that the lion was startled for the moment and made off to another part of the enclosure.

Here, unfortunately, he was more successful, as he jumped on to and broke through a tent in which eight patients were lying. Two of them were badly wounded by his spring, while a third poor wretch was seized and dragged off bodily through the thorn fence. The two wounded coolies were left where they lay, a piece of torn tent having fallen over them; and in this position the doctor and I found them on our arrival soon after dawn next morning. We at once decided to move the hospital closer to the main camp; a fresh site was prepared, a stout hedge built round the enclosure, and all the patients were moved in before nightfall.

As I had heard that lions generally visit recently deserted camps, I decided to sit up all night in the vacated *boma* in the hope of getting an opportunity of bagging one of them; but in the middle of my lonely vigil I had the mortification of hearing shrieks and cries coming from the direction of the new hospital, telling me only too plainly that our dreaded foes had once more eluded me.

A MAN EATEN FROM THE HOSPITAL

Hurrying to the place at daylight I found that one of the lions had jumped over the newly erected fence and had carried off the hospital water-carrier, and that several other coolies had been unwilling witnesses of the terrible scene which took place within the circle of light given by the big camp-fire. The water-carrier, it appears, had been lying on the floor, with his head toward the centre of the tent and his feet nearly touching the side. The lion managed to get its head in below the canvas, seized him by the foot and pulled him out. In desperation the unfortunate water-carrier clutched hold of a heavy box in a vain attempt to prevent himself being carried off and dragged it with him until he was forced to let go by its being stopped by the side of the tent. He then caught hold of a tent rope, and clung tightly to it until it broke. As soon as the lion managed to get him clear of the tent, he sprang at his throat and after a few vicious shakes the poor man's agonizing cries were silenced for ever. The brute then seized him in his mouth, like a huge cat with a mouse, and ran up and down the *boma*, looking for a weak spot to break through. This he presently found and plunged into, dragging his victim with him and leaving shreds of torn cloth and flesh as ghastly evidences of his passage through the thorns.

Dr. Brock and I were easily able to follow his track, and soon found the remains about four hundred yards away in the bush. There was the usual horrible sight. Very little was left of the unfortunate man — only the skull, the jaws, a few of the larger bones, and a portion of the palm with one or two fingers attached. On one of these was a silver ring, and this, with the teeth (a relic much prized by certain castes), was sent to the man's widow in India.

Again it was decided to move the hospital; and again, before nightfall, the work was completed, including a still stronger and thicker *boma*. When the patients had been moved, I had a covered goods-wagon placed in a favorable position on a siding which ran close to the site which had just been abandoned, and in this Brock and I arranged to sit up that night. We left a couple of tents still standing within the enclosure, and also tied up a few cattle in it as bait for the lions, who had been seen in no less than three different places in the neighborhood during the afternoon (April 23).

Four miles from Tsavo they had attempted to seize a coolie who was walking along the line. Fortunately, however, he had just time to escape up a tree, where he remained, more dead than alive, until he was rescued by the traffic manager, who caught sight of him from a passing train. They next appeared close to Tsavo Station, and a couple of hours later some workmen saw one of the lions stalking Dr. Brock as he was returning about dusk from the hospital.

MY FIRST SHOT AT A MAN-EATER

In accordance with our plan, the doctor and I set out after dinner for the goods-wagon, which was about a mile away from our hut. In the light of subsequent events, we did a very foolish thing in taking up our position so late; nevertheless, we reached our destination in safety, and settled down to our watch about ten o'clock. We had the lower half of the door of the wagon closed, while the upper

half was left wide open for observation, and we faced, of course, in the direction of the abandoned *boma*, which, however, we were unable to see in the inky darkness.

For an hour or two everything was quiet, and the deadly silence was becoming very monotonous and oppressive, when suddenly, to our right, a dry twig snapped, and we knew that an animal of some sort was about. Soon afterward we heard a dull thud, as if some heavy body had jumped over the *boma*. The cattle, too, became very uneasy, and we could hear them moving about restlessly. Then again came dead silence.

At this juncture I proposed to my companion that I should get out of the wagon and lie on the ground close to it, as I could see better in that position should the lion come in our direction with his prey. Brock, however, persuaded me to remain where I was; and a few seconds afterward I was heartily glad that I had taken his advice, for at that very moment one of the man-eaters — although we did not know it — was quietly stalking us, and was even then almost within springing distance.

Orders had been given for the entrance to the *boma* to be blocked up, and accordingly we were listening in the expectation of hearing the lion force his way out through the bushes with his prey. As a matter of fact, however, the doorway had not been properly closed, and while we were wondering what the lion could be doing inside the *boma* for so long, he was outside all the time, silently reconnoitering our position.

Presently I fancied I saw something coming very stealthily toward us. I feared, however, to trust to my eyes, which by that time were strained by prolonged staring through the darkness, so under my breath I asked Brock whether he saw anything, at the same time covering the dark object as well as I could with my rifle. Brock did not answer; he told me afterward that he, too, thought he had seen something move, but was afraid to say so lest I should fire and it turn out to be nothing after all.

After this there was intense silence again for a second or two, then with a sudden bound a huge body sprang at us.

"The lion!" I shouted, and we both fired almost simultaneously — not a moment too soon, for in another second the brute would assuredly have landed inside the wagon. As it was, he must have swerved off in his spring, probably blinded by the flash and frightened by the noise of the double report which was increased a hundred fold by the reverberation of the hollow iron roof of the truck.

Had we not been very much on the alert, he would undoubtedly have got one of us, and we realized that we had had a very lucky and very narrow escape. The next morning we found Brock's bullet embedded in the sand close to a footprint; it could not have missed the lion by more than an inch or two. Mine was nowhere to be found.

Thus ended my first direct encounter with one of the man-eaters. The next chapter will tell of the reign of terror that followed.

WHAT A FOREST FIRE MEANS

THE INCALCULABLE LOSSES AND METHODS OF PREVENTING THEM

BY

FRANCIS J. DYER

IN THE early part of September, forest fires were reported at the same time in Minnesota, Michigan, Wisconsin, Ontario, California, and Maine. Every year fires break out, not only in these places but in all the forested regions in the United States. When they wipe out a lumber camp or a hamlet the news gets into the papers. But when they destroy only miles and miles of virgin forest that nature has taken centuries to grow — and they do this every year — little attention is paid to it; the public as a rule does not even know it. Year by year this waste goes on in the diminishing lumber and wood supply that is necessary to national prosperity.

And this waste is not necessary. In the

National Forests, the Forest Service has shown that the fire damage can be largely obviated.

In 1906 the Forest Service, being in good working order, had reduced the burned area within the National Forests to 115,416 acres and the money-value of timber destroyed to $76,183. In 1907, with a forest area of 130,700,000 acres under its jurisdiction, only 90,661 acres of timber and 103,440 acres of grass land (the latter in Kansas, Nebraska, and Oklahoma) were burned, with a timber damage of $26,057. This is equivalent to .14 per cent. of the whole National Forest. The cost of fire fighting in 1907 was reduced to $3,610. The regular and volunteer forces enlisted for fighting fire in the National Forests number perhaps 200,000 men, among whom are employees of great lumber companies and railroad systems, stockmen and their many herders, and every holder of use-permits in the National Forests with all dependents — all of them ready at a moment's notice to battle with the forest fire, under the practised direction of the United States forest supervisors.

For example, one day, in August, 1907, a stockman looking after stray mavericks in the Sequoia Forest saw a blaze roaring up a cañon. He rode all night at a reckless gait over the mountain trails to the nearest station on the network of telephone lines which the Forest Service has been building of late years. Arrived at the station, he slid from his panting horse and in a moment was shouting through the telephone into the ear of Forest Supervisor W. B. Greeley. Mr. Greeley roused all his available rangers over the telephone. They notified all the stockmen within reach. Horses were saddled, provisions were got together, axes, shovels, sacks, and water were hastily loaded on pack animals, and the advance guard of twenty men was on its way to the cañon where the fire was burning.

Meantime a crew of forest rangers, who had been building a bridge across the Kern River on the other side of the fire, had heard of the danger and were first on the scene. With a good start, the fire was now in matted undergrowth and was burning slowly but steadily in the direction of timber in the National Forest. The bridge builders divided their small force into two watches; one crew began cutting a trail, backfiring as they went, and aiming their course so as to head off the progress of the fire. A cook was appointed who served hot food every two or three hours. The watches changed off at regular intervals, for fighting fire is too hard for a man to continue at long. Even with the relief several of the men dropped from fatigue before Mr. Greeley's party reached the scene. The fire was at last corraled — fire guards had been made, heading off its progress, and the day was saved.

While the annual fire loss has been gradually cut down by the watchfulness and energy of the Forest Service, the past season is an exception. On account of the extensive drought, last summer was one of the worst on record. One of the most destructive fires was that in the Des Chutes National Forest in the Blue Mountains of eastern Oregon. Before it was discovered it had attained a tremendous start with a raging front fifteen miles long, and was eating into the splendid forest at the rate of a mile and a half a day.

What was the origin of it is still a mystery. Before any perceptible success was made in combating it, this fire measured forty miles in circumference. Inspector Kent of the Portland office took charge of the fire fighters. The scene of operations was sixteen miles from water and fifty miles from a base of supplies. Under his skilful direction it took 200 men nine days of relentless warfare to subdue the fire. The service expended $6,000 for labor and supplies. The fire itself cost the nation 750,000 dollars' worth of standing yellow pine, and had it not been conquered when it was it would have burned timber worth millions of dollars.

But while in the National Forests such fires are put out, elsewhere they burn, sometimes for days, sometimes for months. In the Northwest, smoke from forest fires is a common sight throughout the summer. One can travel miles in the pine lands in the Carolinas and Georgia covered with small growth and charred pine stumps where the fires have spoiled all chance of reforestation. In the Adirondacks, many of the mountains are burned over and parts of the valleys are filled with dead trees and fire weed. The success of the Forest Service in its jurisdiction points the way to save the timber, but it has jurisdiction over but a comparatively small proportion of the forested area, and all of that is in the West. If all the forests are to be saved, states, counties, towns, corporations, and private individuals must coöperate.

Lumber companies and other private owners of timber lands are awakening to the

necessity of systematic fire protection and many of them now coöperate with the Forest Service where private and public holdings are contiguous. In the State of Washington, owners of stumpage have formed an association for the purpose of protecting their lands. They have hired rangers and proceeded on the plan pursued by the Government, each member of the association paying into the treasury for expenses a sum based on his acreage. In many cases they have the aid of the Forest Service which is always ready to fight fire wherever it may be, not stopping to inquire whether it is on public or privately owned lands.

Local and state authorities are coöperating with the Forest Service, as in Kern, Tulare, and San Diego counties, Cal., where the county supervisors have appointed men to patrol especially dangerous fire districts, and the Forest Service has assigned an equal number of men to those districts. Efforts are now being made by the service to get the railroads to coöperate by causing strips to be cleared on each side of their tracks and issuing instructions to the train crews and track walkers to aid the forest officers whenever it becomes possible to do so in putting out fires, and to warn rangers of fires.

Some states are enacting laws which are likely to prove beneficial. California is cited by the Forest Service as one of the states which possesses an excellent law on the subject, and the law is enforced. For example, last summer two luckless campers on the way from Fresno to the mountains for a vacation were arrested on the second day of their trip and fined all their vacation money. They had not entirely put out their first night's camp-fire.

Some of the Eastern states too, notably Maine, are making efforts to combat the fire menace.

Yet by far the larger part of the forests of the United States is unprotected. The fire loss is far greater than the cost of protection would be and we shall moreover pay for it a hundred times over in costly and painful reforestation in the future, for we shall learn what every civilized country of Europe has learned by experience that forests are an absolute necessity and whether they be cut or allowed to burn they must be replaced.

SUCCESSFUL IMMIGRANTS IN THE SOUTH

THE DIFFICULT PROBLEM SOLVED BY THE BUSINESSLIKE EFFORTS OF ONE MAN

BY

ROBERT W. VINCENT

ONE of the hard tasks of our time is to induce immigration to the Southern states. The land is rich, but wages are low and the race-problem frightens many; and the difficulty of starting a large stream of newcomers from Europe southward, however much they crowd the Northern cities, has seemed practically insuperable. But one man has solved it in a small area and made plain the principle upon which such work may be indefinitely extended. He is Mr. Hugh MacRae, of Wilmington, N. C. And this is the story of how he did it.

He knew of the failures of many immigration schemes and he resolved to profit by others' mistakes. Three years ago he began work, but not until the past summer, when his efforts were on the high road to success, did he take the public into his confidence. Not even the people of the nearby city of Wilmington knew what he was doing, until last summer when he invited the leading business men of North Carolina to visit his colonies. They saw five self-sustaining and flourishing colonies with more than eight hundred agriculturists, and a sixth colony forming. Three years ago Mr. MacRae's agents quietly secured options on 453,000 acres of land before real estate dealers awoke to the fact that something was afoot. Then of course the price of virgin land — land that had hitherto been considered a drug on the market — went up.

That, however, did not deter the man who had planned a work of such magnitude, and his agents were told that they should continue to take options at any reasonable price. The next step was a rigid investigation of the titles. Then samples of the soil were sent to the bureau of soil survey, at Washington, for tests and analysis. When these preliminaries were complete, the land which had passed all tests was purchased. It amounted to a little less than two hundred thousand acres, in five tracts.

SPLENDID FARM LAND DISCOVERED

The investigations of the Government soil experts opened the eyes of Mr. MacRae to the fact that the alluvial land lying along the river bottoms, commonly accepted as best for agricultural purposes, could not compare with the light, sandy loam of the pine forests that had always been regarded as valueless for farming.

These vital points settled, a corps of fourteen engineers surveyed the tracts (it had been fully determined to establish five distinct colonies) laid out the streets, plotted the land into ten and twenty acre farms, pointed out locations for the houses and fixed a system of drainage beneficial to the health of the colonists and to the growth of the crops. Thus was a sure and stable foundation laid and not until then did the promoter begin to bring the colonists who were to play so important a part in its development.

Mr. MacRae employed Mr. C. L. Fisher, of Missouri, who had been engaged in a successful Western railroad colonization scheme. Mr. Fisher took up his duties in November, 1905, and, as a nucleus for one of the projected colonies, he brought from the West a party of twenty Illinois farmers. These men invested in truck farms at Castle Hayne, where it was proposed to plant the American colony. Thus the first step was taken.

GETTING COLONISTS FROM EUROPE

It was the foreigners, however, upon whom the heart of the promoter had been set. Mr. Fisher went abroad to study at first hand the conditions that confronted the rural population of Europe and see the people whom it was desired to secure as colonists. He spent four months in Germany, Italy, France, and other countries in which agriculture is the chief pursuit. He studied the conditions surrounding the small farmer; his handicaps, the soil, the climate conditions, and particularly the methods of farming.

When he returned, he had a systematic plan for the colonies. In this he differed from those who had tried experiments before him in the South. "Get the immigrants," they had said, "and let the future take care of itself." But this was not the way in which Mr. MacRae and Mr. Fisher worked. Before the first immigrant had started for America, plans for the future comfort and welfare of the colonists were fully matured. When all was ready Mr. Fisher began his labors in earnest. He offered these strange folk whom he besought to leave their home and cast their lot in the South an opportunity in a place prepared to receive them where they could have the advantages of a soil, unrivalled in any other section for intensive truck farming, an open climate, mild winters which permit of work all the year round, healthfulness, and good markets.

The first practical work of the promoter was the establishment of a test or demonstration farm, on some of the poorest soil to be found, adjacent to one of the colonies. As the colonists arrived they were sent to the community to which, by nationality, they belonged. The Italian colony is called St. Helena; the Polish colony Marathon; the English colony Artesia; the German colony New Berlin; the American colony Castle Hayne; and the new colony (not yet settled) Maraco. Streets had been laid out, ten and twenty acre tracts surveyed, a drainage system planned, shipping depots built, to which spur tracks were run from the main line of the railroad, and at the head of each colony were built large, substantial barns, in which were mules, wagons, plows, and every necessary farming implement, which were rented to the colonists at a very small rate, until they could get a start and buy their own stock and implements.

The first settlers were given work at ditching, building streets and roads, and otherwise putting the settlements in shape. The wood which they cleared from their land is purchased by Mr. MacRae at fair prices. Those who cannot pay cash for their farms are given liberal instalment terms, and neat, comfortable homes are built for them under the same system of payment. In each colony sufficient land has been donated for churches and schools. Mr. MacRae assists in their erection. The new settler may come into possession of a home and farm without a penny; he gets paid for the

wood he clears from his land, and then, while waiting for his first crop, he has work on settlement improvements which enables him to live. Every deed issued contains a clause restricting the land from passing to a Negro.

EXPERT MANAGEMENT OF THE COLONIES

The most important feature, however, of the fostering care of these strangers in a strange land is the employment of efficient superintendents, experts in soils and agriculture. There is one for each colony and he lives in the colony over which he has supervision. These superintendents look after the comfort and welfare of the colonists. They give the colonists practical lessons on the demonstration farm, teach them the proper seasons for planting, methods of cultivation, and otherwise help them over the rough places that they encounter in beginning life in a new country under new conditions. When the crops are ready for marketing the superintendents keep the planters informed of the market prices and conditions. They teach them how, where, and when to ship their products, and protect them from any sharper who would take advantage of their ignorance.

The demonstration farm has stimulated the colonists to do some experimenting for themselves. For instance, one enterprising Italian is planting bird seed and Italian broom corn. Both crops are profitable and the colonists find the climate of North Carolina closely akin to that of Northern Italy. With new colonists will come further experiments and a greater diversity of agriculture. The demonstration farm itself is bending every energy to ascertain by practical tests just what crops can be grown with greatest profit and success. It has found out, for example, that alfalfa can be successfully grown in this section. Five crops can be made every year, and alfalfa brings from $20 to $30 a ton in open market. With one acre of alfalfa a truck farmer may sustain his stock without cost for feeding for an entire year. The advantage in the solution of the forage problem that this section possesses for instance over Western Canada — which is just now experiencing such a boom in agricultural development — is that in Canada but two to three crops of alfalfa can be grown in a year. The seasons for planting, the fertilization and hybridization of fruits and vegetables, and the best methods of gathering and shipping produce are gone into thoroughly at the expense of the promoter and the results transmitted for the practical use of the colonists. The demonstration farm is an up-to-date agricultural school and the tuition is free.

GREAT RETURNS FROM EXTENSIVE GARDENING

According to Mr. MacRae's books of 1907, the following were the cash returns per acre from carefully measured ground:

Lettuce	$600	Egg plant	$750
Strawberries	200	Carrots	75
Beets	200	Cabbage	150
Cauliflower	300	Spinach	150
Snap beans	250	Turnips	150
Cucumbers	275	Tomatoes	125
Canteloupes	200	Asparagus	750
Radishes	75	English peas	150
Onions	125	Irish potatoes	175
Peppers	150	Sweet potatoes	125

These crops, except the strawberries, occupied the ground for only six weeks to five months and it was then replanted in other crops. Thus, by careful rotation, from three to four crops are gathered from the same land each year. The superintendent of one of the colonies told me that with average conditions and even a fairly successful season a trucker should be able to clear $1,200 on a ten acre farm.

All the colonies are on the main line of the Atlantic Coast Line, and have the benefit of the solid refrigerator trains which, during the shipping season, even have right of way over the passenger traffic. Icing stations are maintained all along the route. Spur tracks are run to the depot of each colony. The commission merchants of the big cities send their buyers to Wilmington and neighboring towns and they buy the produce on the station platforms, giving checks on local banks and relieving shippers of any further trouble. In many cases they purchase the crops in the field outright and hire their own labor to gather them.

SOME SURPRISES IN NATIONAL CHARACTER

There is just one other feature of this colonization movement that has had much to do with its success — the proper care in the selection of the immigrants. There is no intermingling of nationalities. Germans are compelled to buy farms in the German colony, Italians in the Italian colony, and so on. Only men with families are solicited; single men are apt to become dissatisfied and one dissatisfied colonist would be the poorest advertisement this sort of a venture could have. The colonists are selected as carefully as pos-

sible. For instance, no Southern Italians are received — only those hailing from the provinces north of Tuscany, for they are agriculturists — peaceable, law-abiding people, the sturdiest sort of pioneers. Theirs is the best settlement in the colony. They follow native methods of farming. When the Italian buys his farm the first step is to plant fruit trees all around his enclosure. These trees serve as a fence to mark his property and they are dwarfed so as not to shade his crops. The women and children work in the fields as vigorously as the men. Yet with all their labor in the fields they find time to prepare the meals and attend to their household duties.

Hardly second to the Italians as immigrants are the Germans. Their thrift and industry is well known and their colony is a model. They have, beside a store, church, and school, a coöperative boarding-house for the accommodation of new arrivals.

The Poles, too, are proving very satisfactory as colonists. There are more than two hundred of them in their colony and they are making good. They already have a resident priest, who owns the largest farm in the settlement, and they are building a really handsome church. A young sister of the priest is at the state normal college to be fitted to teach the children of the colony, for they expect to become thoroughly Americanized and to keep in progress with this great country in which they have cast their lot.

The English colony is making slower progress than any of the others. The Englishmen are not giving evidence of the industry that characterizes the colonists of other nationalities, and the promoter accounts them the least desirable. They have not the self-reliance, the push, and energy of the Italians and Germans, and they do not succeed at all as pioneers. They have every advantage, their colony is planted on the very best of the soil types of the sections and they have natural adjuncts to comfort that nature has not provided for the other sites.

Yet the Europeans have succeeded so well that the colony as a whole is a convincing success. The importance of this colonization movement is that it points the way to successful immigration to the South. Mr. MacRae has opened a new door of hope. If a numerous stream of sturdy agriculturists can be turned into the Southern states, the revolutionary progress which is being made there will be quickened and these States will become rich with an increasing speed.

WHAT WAR WILL BE WITH FLYING-MACHINES

HOW PRACTICAL MILITARY EXPERTS EXPECT IT TO REVOLUTIONIZE FIGHTING METHODS — THE COLLEGE OF WAR REVISING STRATEGIC PLANS — STUDYING BIG BATTLEFIELDS FOR IDEAS — THE BIG BALLOON AS A COMBATANT — THE AEROPLANE AS A SCOUTING MACHINE — SOMETHING OF BIG PLANS

BY

FREDERICK TODD

NOTE.—*The material for this article was obtained at first hand from army officers who are now taking an important part in the development of balloons and aëroplanes as fighting-machines. Every fact or forecast given is the result of interviews with experts in military aëronautics.*—THE EDITORS.

AFTER the Baldwin dirigible balloon and the Wright aëroplane had shown what they could do in the army tests at Fort Myer, Va., Major G. O. Squier, head of the Aëronautical Board, said:

"The airship is bound to revolutionize warfare. It is probable that its coming will change greatly our ordinary living ways. But in war the effect of the use of dirigible balloons and aëroplanes is inevitable. They will bring

about sweeping modifications of strategy and tactics. They will make conflicts shorter and sharper and more destructive.

"But their coming will lessen the number of wars. We have been fighting on a single plane surface. Now it will be war into the third dimension. Heretofore the man or the men who provoked wars have been pretty sure in the knowledge that their own skins were safe, and that others would have to do the fighting. Now they will be in the thick of it. They have been safe in the capital, with miles of country, lines of fortifications, and armies between them and the enemy. But they cannot fortify the air. And at the first drop of the glove the enemy's airships will dash for the capital, to capture them. Some wars cannot be avoided. But the men who bring on wars will think twice in the future before they let them come to the issue."

The big balloon had sped forward and back over the Virginia woods about the fort for two hours, as even and steady in its motion as an ocean liner. The big white aëroplane had circled the parade ground of Fort Myer in its record breaking flights for over an hour, swooping and bending, with its wings incessantly atwist like a great bird. The Major is a young man and enthusiastic, as are the other young officers of the Aëronautical Board, who made the test of flying-machines purchased by the Government; but, like them, he is both a practical soldier and acquainted with the wood, steel, and canvas or silk of the machines. And none of these aëronautical men of Uncle Sam's army are loose talkers. All are men who have gained expertness in some military specialty and have been detailed to this work because their expertness is needed either to adapt the new aircraft to many uses or to find ways of meeting hostile aircraft.

There are Major C. McK. Saltzman who has had charge of the instruction in signal systems at Fort Leavenworth, and Captain Charles E. Wallace, representing with Major Squier the Signal Corps. Then there are Lieutenant Frank P. Lahm, of the Cavalry, with a record as a balloonist; Lieutenant Thomas E. Selfridge of the Artillery, expert in aërodynamics and member of Dr. Bell's Aërial Experiment Association; and Lieutenant Benjamin D. Foulois of the Infantry, who has made a study of the tactics of machine-flying in war. Lieutenant Creecy of the Marine Corps has worked with these young officers of the army, representing the Navy in the development of the science of aërial warfare. These young officers are busy finding out what kind of balloons and aëroplanes will make the best fighting machines; they will take the balloons and aëroplanes and gain expertness with them, the while studying how they can be substituted for cavalry in scouting and for infantry in outpost and local security duty; also how to make them as little vulnerable as possible to artillery fire as well as to improve the instruments and methods of range-finding and the guns so as to "find" the enemy's motor-balloons and flyers.

And while the younger officers are doing these things there are older men who are working out the new problems of strategy involved in the wide use of flying apparatus. Major-General Bell, Chief of Staff, and General Wotherspoon, head of the War College and member of the General Staff and Board of Strategy, have watched closely the tests at Fort Myer. They are continually in touch with the work of the younger experts. Brigadier-General Allen, Chief of the United States Army Signal Corps, went to Europe last summer to study the progress made there in military aëronautics. For in Europe the men of war are in a ferment over the advent of battles in the air. They have more airships than we and have been experimenting elaborately with the engineering and artillery problems. They have been studying battlefields and working out the strategy of these. The English army has had an aëronautical expert going over the great fields of our Civil War for the same purpose. The military world realizes the seriousness of the coming of the airship.

AIRSHIPS WILL BE IN THE FIGHTING

The Hague Conference last year formulated an international agreement that aircraft shall be used only for observation and not for attack. But the United States alone among the considerable powers signed the agreement. While the public has understood that this agreement amounted to international law, the armies of the world have gone ahead regardless of it. Those who are studying military aëronautics say that it is impossible to think of a non-combatant scouting machine any more than you can conceive of a cavalry detachment going out to reconnoiter without arms. The airships will fight each other. It will be impossible to prevent their taking the offensive in any war.

France and Germany are developing their

big dirigible balloons in order to make them war engines. The French military engineers have disposed of some of the theories that made effective offensive work by balloons impossible. It had been declared that the dropping of explosive projectiles from dirigibles would be uncertain of result, even if it were possible, and that it could not be done because the releasing of so much weight would send the gas-bag flying upward. But *La Patrie* was able to hover high in air over the fortification La Cloche, running motors just fast enough to offset the wind, and land bag after bag of sand within the walls. Later another big balloon manœuvred over the batteries near Pagny la Blanche Côte and sent projectiles down, striking within forty inches of the spot aimed at. More than that, the balloon had an attachment to its interior balloonet by which enough gas was loosed and compensated for within a few seconds to make up for the heavy projectile as it dropped. Our own officers plan to use not only this apparatus but trains of round balloons, each carrying a heavy bomb, to be cut loose as fast as a projectile is dropped. Already prepared in detail is a plan for coast defense by big dirigibles which will not only give warning of the approach of hostile fleets by wireless but will drop torpedoes upon the vessels.

When it is remembered that the cost of building a battleship runs into the millions of dollars and that, after the first ones are constructed, great airships a thousand feet long, fully equipped with searchlights and wireless, should not exceed $100,000, while the Lebaudy craft 328 feet long cost only $60,000, the advantages of balloons for coast defense becomes obvious. A thousand mile coast can be guarded by ten airships costing not over a million dollars altogether.

RIFLES AND FIELD GUNS DO SMALL HARM

Germany has tested exhaustively the effectiveness of rifles and artillery upon dirigible balloons. France has done the same. Soldiers sent up captive round balloons to different heights and let some ascend free with the wind; then rifles, field pieces and big guns were fired at them. Rifle bullets were harmless. The elastic fabric closed over the hole made by them. Below 1,200 feet it was possible to hit the balloons with field pieces if they were not right overhead. But at heights of a mile the aërostats could manœuvre in comparative safety. It was extremely difficult to find the balloon's range if it was moving, and harder to hit it. Big guns and howitzers were more effective, but they required more careful aiming. Altogether the war-balloons could keep out of harm's way with no great difficulty. At night dirigible balloons were able to descend to within a few hundred feet of the ground without being seen and on misty days men on the ground failed to see them, although those in the balloons could see all that was going on below.

The French war-balloons are 328 feet long. The Zeppelin airship was 460 feet long. It was fitted with berths for sleeping, toilet accessories, and had provision for feeding its crew. Our own army officers are planning airships a thousand feet long. Such great aircraft will require skill in management and specially trained officers and men. The experiences of *La Patrie* and *Zeppelin IV.* indicate that they will be sent forth from safe bases or harbors where balloon houses may protect them from storm while on the ground and that ordinarily they will not land or remain moored away from these. A 1,000 foot Zeppelin could carry nearly sixty tons. No military expert believes that this opportunity for armament will be neglected.

It is anticipated that there will be occasions for the use of small balloons shaped like the motor-balloons, having the long stiffening frame hanging underneath but no engines nor propellers. These may be strung together in trains and towed along by the powerful airships to quickly transport small bodies of "technical troops" — the soldiers of modern armies that do not fight but perform with great heroism special duties that the scientific organization of fighting now train men for.

SCOUTS WILL USE AEROPLANES

But it is to be in the rough and ready work of scouting that the flying machine will be busiest in the early days of their use in war, and it is even likely that this will be their most important business, seeing that dropping bombs will not win land battles, however it may help in demoralizing troops. Some say that the aëroplane troops will entirely supersede the cavalry in scouting, others that the troops of horse will still be needed at the front of advancing armies. At all events it will be daring business, this of skimming the face of the enemy's country to find out the

position of his lines, and, if possible, flying farther on to observe the movement of his reserves. There will be fighting to do in this, just as some of the most brilliant work in former wars has been the scout work of bodies of horse or individuals. It must be remembered that both sides will have aircraft. And while some of the swiftest aëroplanes will be sent to get through for information and nothing else, each side will try to stop the air-scouts of the other. Particularly if one commander has a telling preponderance of aircraft, he will attempt to get the supremacy of the sky over the battlegrounds by a regular attack upon the enemy's machines. So it may be that great land battles of the future will be preceded by general battles all along the line in the air, the big balloons like battleships, sailing high, and the aëroplanes searching out their foes, or maybe attacking the enemy's balloons in the rôle of torpedo boats.

The winning of the supremacy of the air by one of the commanders-in-chief of two equal opposing armies will be pretty nearly equivalent to the winning of the land battle. For it would be from then on like a fight between a blind man and one with his eyes open. Inasmuch as the air cannot be fortified and there is much opportunity for dodging and escape by individual flying-machines, it is likely that no general will risk the loss of his aircraft in a battle against odds, but will attempt to stop the enemy's scouts with fire from below, or deceive the observers by strategic feints. The man looking straight down from two hundred feet in air loses something of the effect of relief in the view below. It is like a map to him and the camera he will carry. The tactics of the new warfare have already been tentatively worked out to the point where officers of the line will be expected to mask bodies of troops, by covering them with brush, for instance, or to double the apparent strength of reserve bodies by dummies that the soldiers can quickly arrange with their surplus accoutrements. Men will be particularly trained in sharp-shooting to pick off the aviators, and it is likely that a certain proportion of the troops will be armed with guns especially devised for this purpose, something like the ancient blunderbus.

THE MEN WHO WILL DARE THE WORK

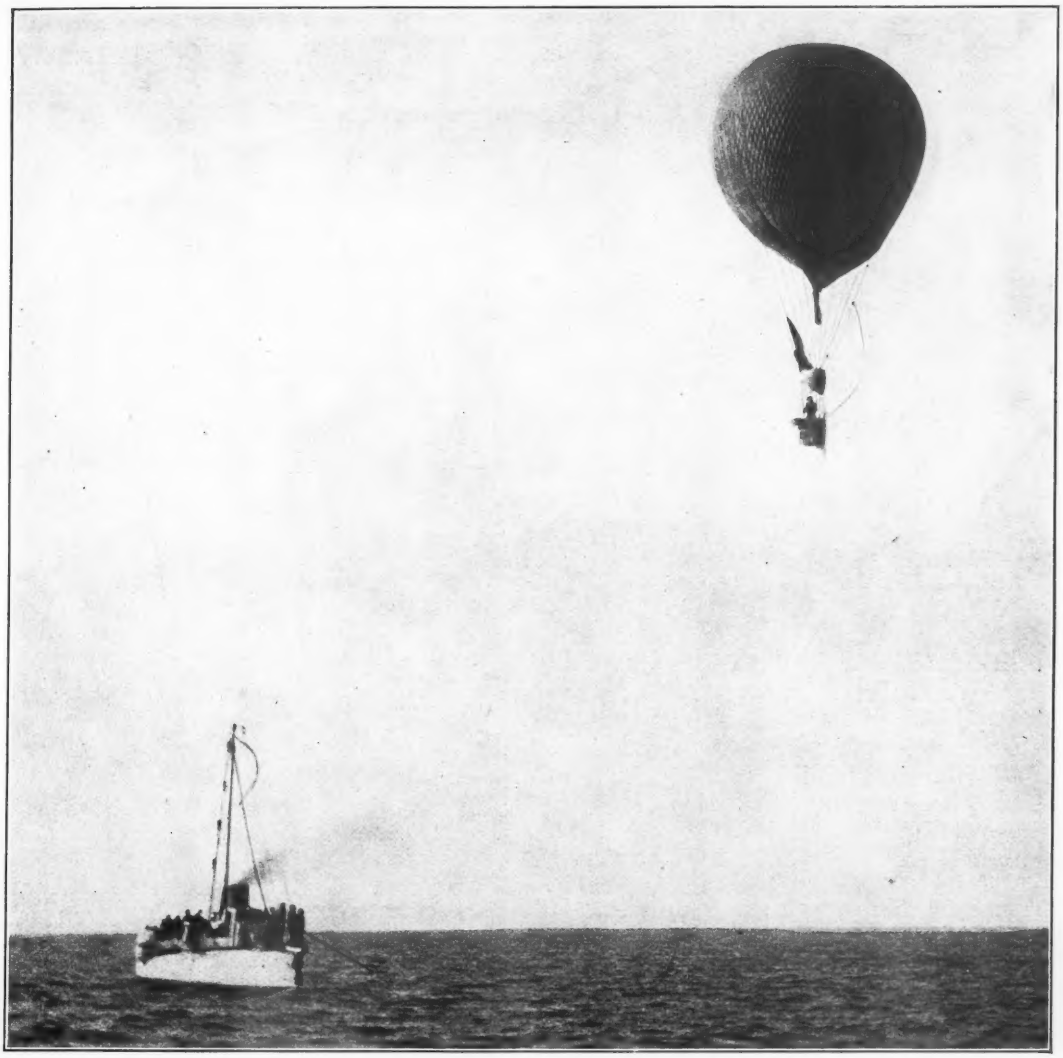
So the man who flies the aëroplane in battle and the comrade at his side, armed with a rifle, a camera, and maps, will have to be daring men of nerve, resourceful, and of particular training. The eyes of the observers will be educated to note objects from the bird's-eye view, which is an entirely artificial point of view to human beings. They will know the artifices of masking troops and will be on the lookout for them. Both will know how to fly the aëroplane, but one will need a scientific training in military cartography. He will probably be an officer, the aviator of some lower rank. They will rise from within the lines of their own army and dart over the land held by the enemy, flying high for a general survey and then circling and skimming the surface for particular observations.

There will be danger in the work, but these men will be picked soldiers and there has never been any lack of volunteers for such service. And, in fact, there is hardly more daring required than the cavalry scouts, who have done the same work before, repeatedly show in battle — there is a better chance to get in and get away. Count von Zeppelin, who first did military balloon work as a German military attaché with the Union Army in our own Civil War, distinguished himself by cavalry scouting in the Franco-Prussian war, once making a complete circuit of the French reserve lines in his uhlan uniform.

And there will be other activities for the aëroplane. They will fly back and forth doing outpost duty. It will be their work to discover attempts at night surprises. They will carry dispatches and maps and with the dirigible balloons may even distribute ammunition to the firing line in time of emergency. It will be difficult to cut off entirely from the rest of the world a besieged army that has half a dozen aëroplanes or a few dirigible balloons. The Japanese at Port Arthur hurled regiment after regiment against slaughtering fire to take "203 Meter Hill" away from the Russians, only to run a telephone line to the top and place there men to observe the effect of big-gun fire from outside the harbor. A single big dirigible balloon with wireless equipment could have done this work at a fraction of the cost in money, to say nothing of the lives of the men that were sacrificed.

HOW THE MACHINES WILL WORK IN BATTLE

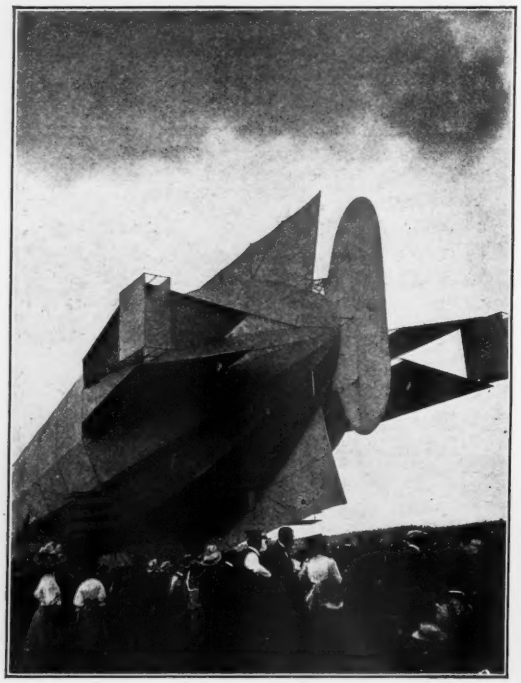
When the battle lines are drawn and the fighting begins, the flying-machines, balloons and aëroplanes alike, will become "the eyes of the army." The great forces approach each



FRENCH CRUISER AND BALLOON

Observations are made covering a wide circle at sea by means of captive balloons sent up from the decks of war-ships. It is expected that dirigible balloons and aëroplanes will soon be a part of naval equipment

other and the commanders, at their head-quarters in the rear, are moving their reserve forces to support their plan of fight. For days the aircraft have reported the forward crawl, along the roads of approach, of the van of cavalry and infantry. The big balloons have been interfering with the work of constructing defenses at critical points. Then, upon the day before the battle, there has been strenuous work upon both sides to locate the massed reserves and find out where they are being sent. There have been skirmishes in the air between the flying machines, and the dirigible balloons, taking a part high in air (while the machine guns especially designed for hunting aëroplanes kept up a constant splutter), have used light rapid-fire artillery to the same purpose. But speedy machines from both sides have dodged through the opposing lines and it is doubtful which commander knows most of his enemy's disposal of forces. All through the night little acetylene searchlights, carried on the flyers, have flashed intermittently here and there, like fireflies over the field, as the daring aviators dodged across the hostile lines in search of information. Sometimes



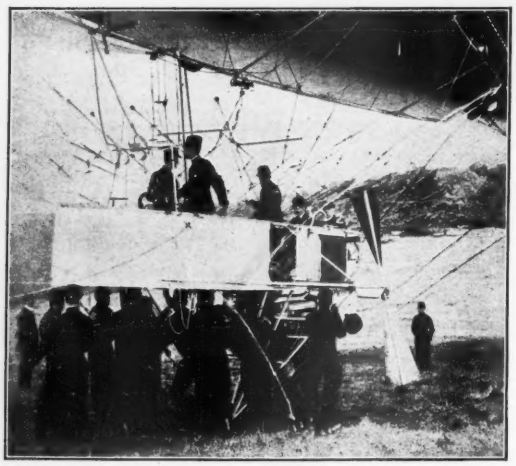
STERN OF THE ZEPPELIN AIRSHIP
The storm that destroyed the balloon is seen approaching

there waved across the country, from great airships a mile in air, the beams of their electric searchlights. And often they showed troops of soldiers and batteries on the march along cross roads, as the commanders moved their reserves in the final shift of their strategical plans. It is to find out what the reserves of his enemy are doing that each commander has put forth his utmost efforts, for in the movement of reserves, away back of the battle lines, he may read the intentions of his rival. Day dawns with the great gray birds still hovering over the field; darting out to make a pass to some particular spot; maybe never returning. Here and there an expert gunner finds the heart of the bird, or with smashed wing it flutters to earth. With long-muzzled guns artillerymen are trying to reach the dirigible balloons. On occasion, hostile airships approach each other and fight for coveted positions.

The fight begins miles away on the left. The flash of the guns can be seen by the watchers in the dirigibles. Away in the distance at the rear of our own lines a great dirigible is appearing. It flies high and goes at great speed. Upon the receipt of a wireless message, our own dirigibles gather into fleet formation, for the enemy's airships are attempting to focus. They have learned in some way that it is the commander taking a personal survey of the field.

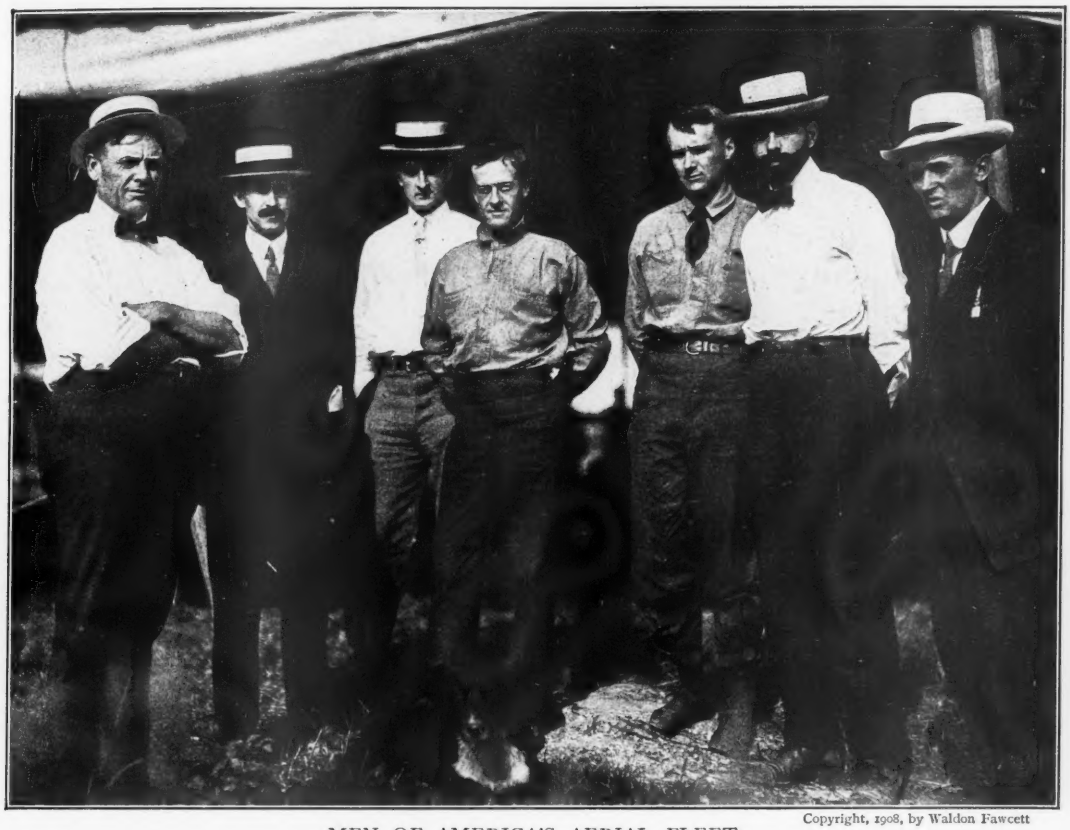
TRANSFERRING GAS FROM THE GOVERNMENT WAR BALLOON

After a flight, gas is removed to a small balloon in order to decrease pressure on the big gas-bag and save leakage. It is forced back into the big balloon before the next trip



GENERAL PICQUART, FRENCH MINISTER OF WAR, AND M CLEMENCEAU IN THE CAR OF "LA PATRIE"

With the coming of the aircraft just at the time that the control of armies by highly



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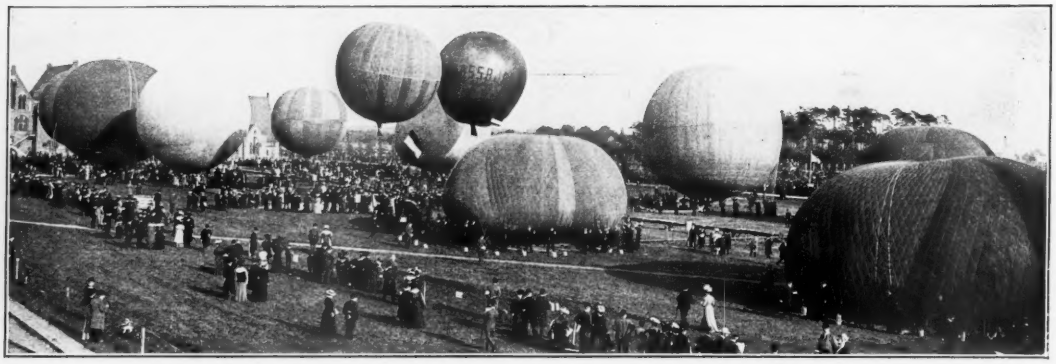
MEN OF AMERICA'S AERIAL FLEET

On the left is Mr. T. S. Baldwin who built the dirigible balloon tested at Fort Myer. Then come Mr. Orville Wright, aëroplane inventor, Lieutenant Creecy, Marine Corps, and Lieutenants Foulois and Selfridge of the Aëronautical Division, U. S. Army Signal Corps. Messrs. Post and Beachey are aëronauts not connected with the army

developed systems of electric signaling has reached near perfection, military science will see the acme of strategy. Heretofore, great armies have been like blind men reaching out for each other before striking. Now every outpost is in touch with the commander's headquarters by electric wire, combining telephone and telegraph. The United States Army has brought its system to the point where it is asking Congress to create a fourth arm of the service, the part of the army that will be its nerves. Our Signal Corps is already the admiration of the armies of the rest of the world, because of its organization and efficiency. At Mukden the Japanese commander knew every move of his army stretched across a fifty mile front. He had 150 miles of telephone wire. Our own Signal Corps has learned how to wire up a battlefield, stretching lines as fast as a horse can go, and every soldier of the corps is a telephone and telegraph station. The flying-machine will fit into this system. With the aircraft darting out and back, reporting what they see to the outpost telephone stations, with high-sailing airships equipped with wireless telegraphy; with photographic records of the field coming in momentarily —— the battle of the future will be a terrible open game of skill in which only the military genius will be able to escape from the relentless arithmetic of war that counts the men and guns, the lay of the battlefields, and the means of moving the forces, but in which the commander who makes the first crushing attack may win, and the man who blunders may lose all, just as the modern naval battle is won and lost.

WHAT THE NATIONS ARE DOING

The sums of money that France, Germany, and England are spending to get ready for battles with the airships total into the millions

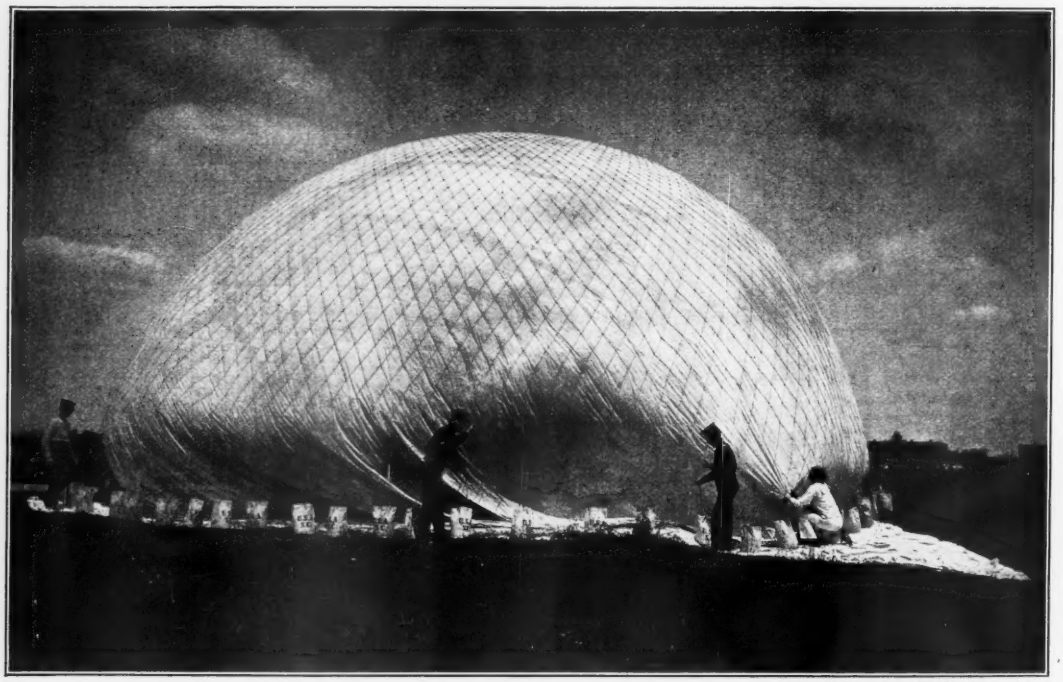


MILITARY BALLOONS IN THE PRACTICE FIELD AT BERLIN

yearly. Germany maintains at Berlin an aëronautical corps of four hundred men and seventeen officers.

In Bavaria there is another corps of aëronautical soldiers and a practice ground. These are entirely apart from the regular balloon troops and signal troops in the army. The German army has five dirigible balloons. These have begun manœuvres in fleet formation. The great Zeppelin airship of war that was destroyed is to be replaced by another and perhaps more, the materials for which have already been manufactured. What Germany and France have done in experimenting with offensive operations with balloons has already been told.

Just how many big airships France has is not certainly known. She has four large dirigible balloons of the Lebaudy type that are known. These include the new *République*. But the military attachés of other countries have seen indications that France gives the same name to more than one airship and brings them out for practice in turn as the same balloon. A 328-foot dirigible, *Democratie*, is approaching completion. The aërial "programme"



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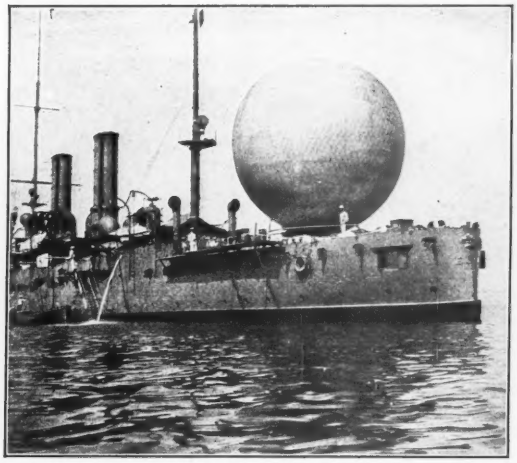
UNITED STATES SIGNAL CORPS MEN INFLATING A BALLOON

SIGNALING BALLOON USED IN THE GERMAN ARMY

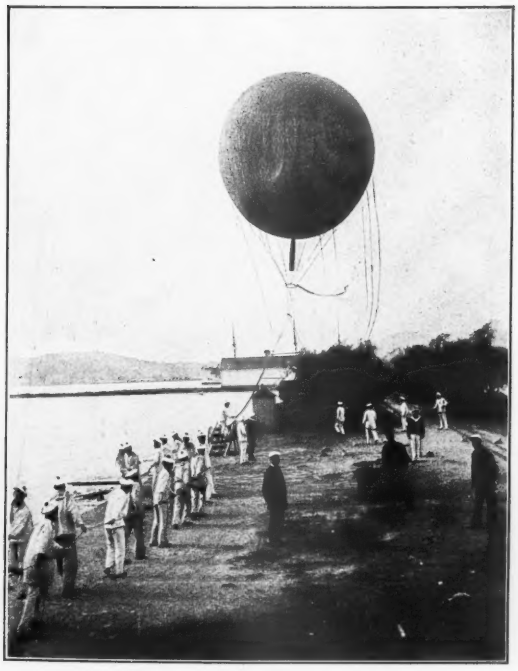


ITALIAN WARSHIP SENDING UP A CAPTIVE BALLOON AT SEA

The use of captive balloons for making observations at sea is practised by European navies

includes twenty-eight airships as big as *La République*, to be distributed, two each, to the forts at Verdun, Toul, Epinal, Belfort, Besançon, and Lyons. The Paris forts are to have four. An even dozen are to be assigned to the field army of the Republic. Airships of the kind cost France $60,000 each.

England's programme for an aërial fleet is not known. Her army is studying out the scientific problems as our own is. She is hunting

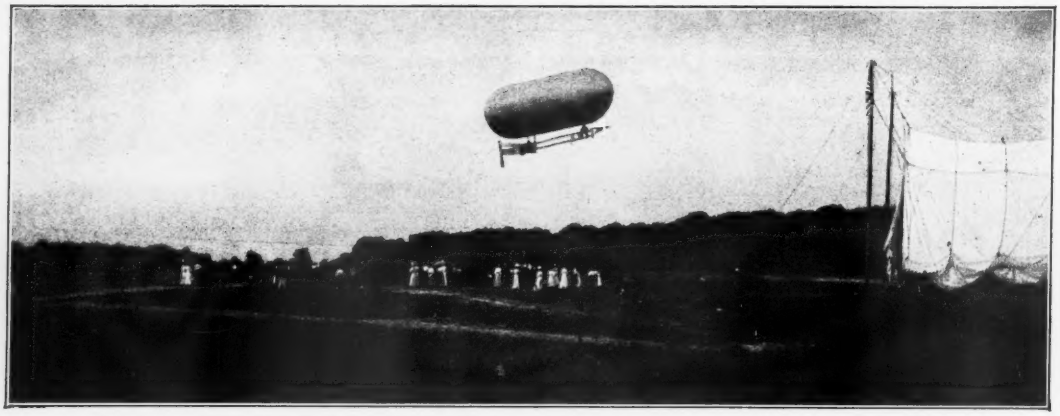


ASCENT OF A FRENCH WAR BALLOON

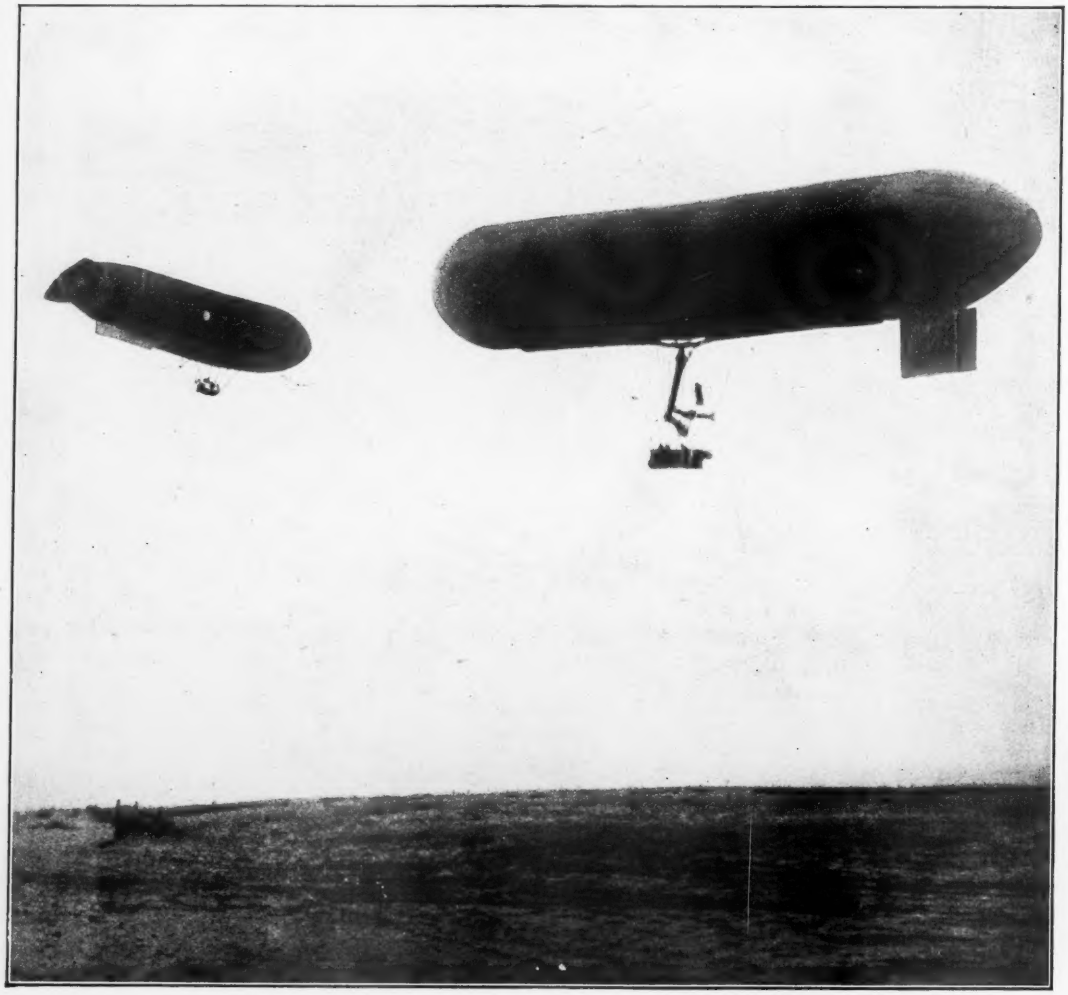
An American balloon of this type used by our army for reconnoitering at Santiago was brought down by a Spanish shell

ROUND AEROSTAT USED BY ITALIAN ARMY

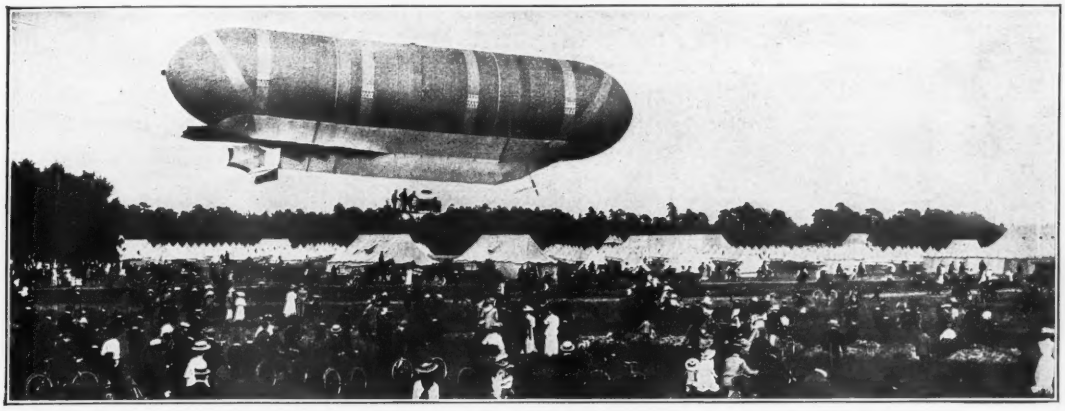
Captive balloons of the round form were used in the Civil War for making observations. They never had a wide success



THE GOVERNMENT BALLOON OVER THE PARADE GROUND AT FORT MYER
The balloon was turning during the two-hour endurance test late in the evening, August 22, 1908



GERMAN WAR BALLOONS BEGINNING FLEET FORMATION
The Gross and von Parsefal dirigible balloons have been practising manœuvres together above Berlin



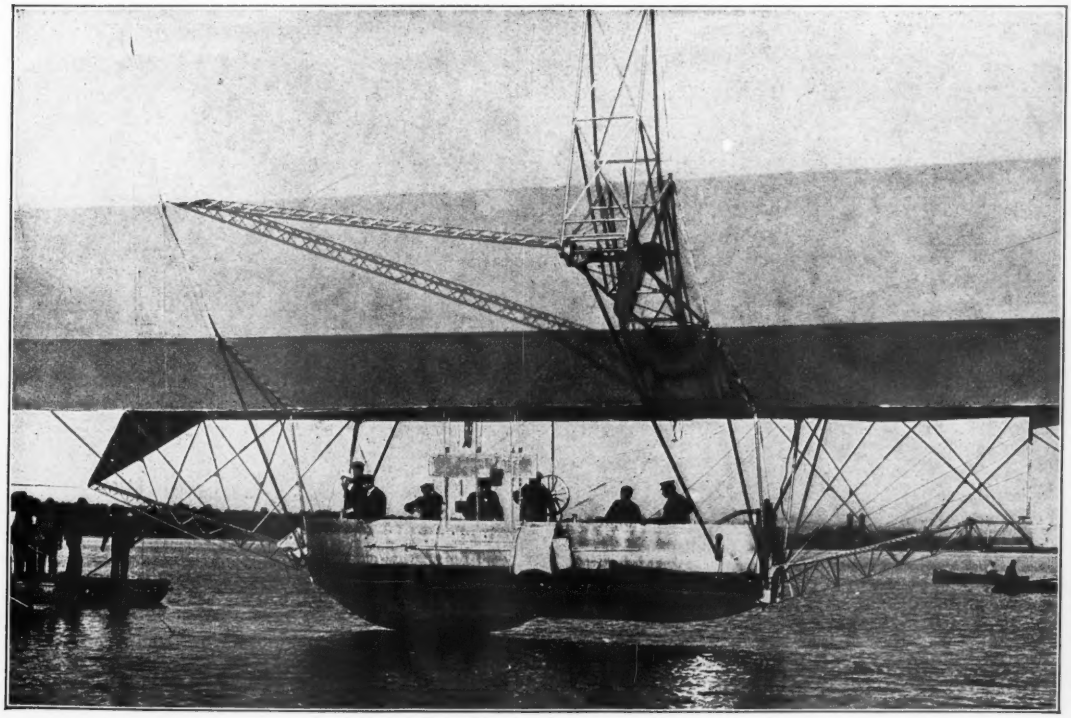
"NULLI SECUNDUS II." THE ENGLISH DIRIGIBLE WAR BALLOON

This is an improvement upon the former *Nulli Secundus*, which was deflated in a storm that smashed the framework

aëroplanes. The new dirigible balloon, *Nulli Secundus II.*, has behaved admirably. It is much larger than the new Government balloon that America has just purchased.

OUR OWN PLANS

And, if Congress grants the money that our Army asks for an aërial fleet, we will take rank with Germany and France in the aëronautical strength of our forces. Our army experts have been awake to the seriousness of being caught without an air fleet in a war. They have had for some months the complete plan of an American type of airship, differing from the French Lebaudy and the German Zeppelin. The American type may be built a thousand

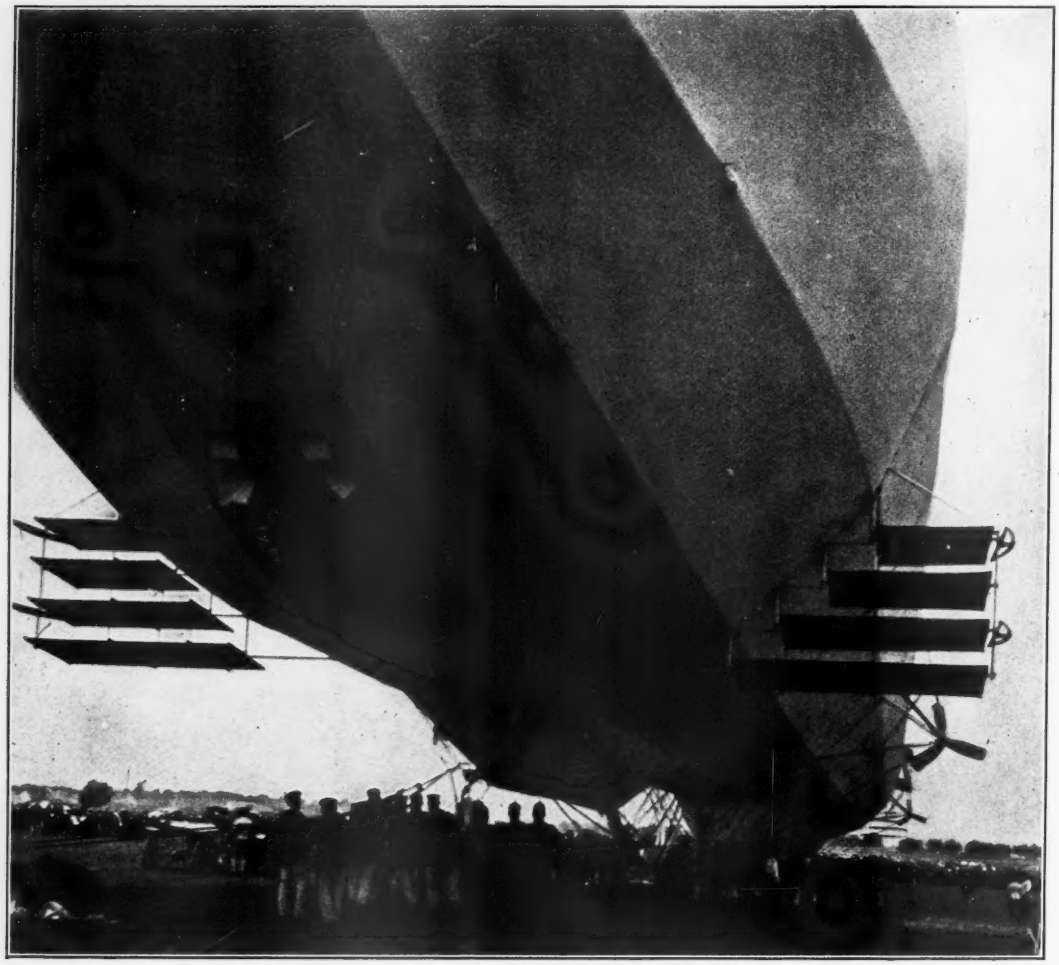


CAR OF THE ZEPPELIN WAR BALLOON

The roped gangways leading to the enclosed passages are here seen

feet long. A complete plan of coast defense with dirigible balloons, by which no hostile fleet could approach our Atlantic, Pacific, or Alaskan border in safety, is also mapped out. We have the first military aëroplane —— but the Army wants more. Congress has been asked to establish a larger Signal Corps of 2,500 men, from which aëronautical troops will be detailed. It is proposed to establish a permanent aëronautical board in which all branches of the army will be expertly represented. There is much yet to do. New guns, new projectiles, new range finders, new machine-guns must be devised and built to meet hostile air fleets.

If Congress acts before March 4, 1909, and gives a million dollars, the work of building two great war-balloons and many aëroplanes will begin at once. If the appropriation is not made by that time, under our system it will be two years before we can begin the building of an air fleet to meet those of Europe. Great wars have been won by the use of newly invented tools of war. The invention of the bayonet settled one great campaign. The invention of the breech-loading rifle settled another. The great powers all know and appreciate the gravity of the airship as a military invention. It is not now a situation in which one power has the decided advantage. It is rather a situation in which the men at the heads of armies are putting forth every effort that they may not be caught behindhand with these revolutionary tools of war when war comes.

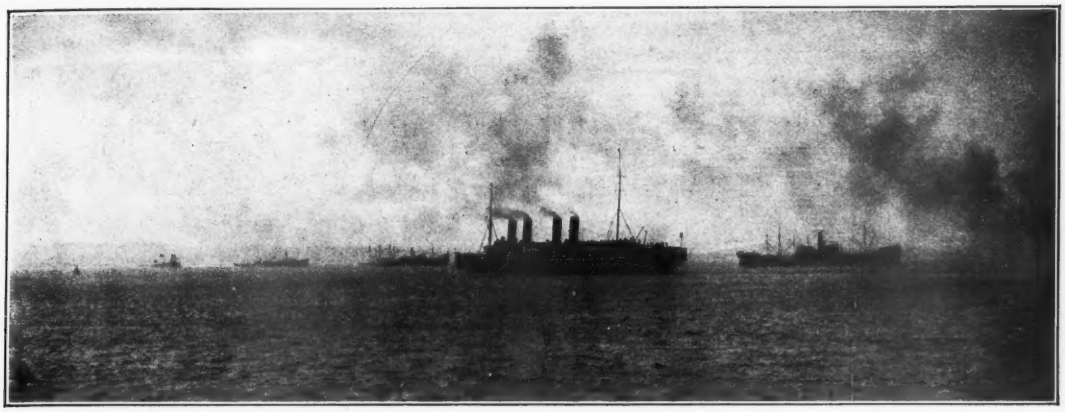


"ZEPPELIN IV." JUST BEFORE ITS DESTRUCTION

German soldiers are holding the airship while gas is taken on from the military balloon-wagon at one side

OUTWARD BOUND

A swift ocean liner passing down New York Harbor toward the narrows



THE CONTEST FOR OCEAN SUPREMACY

HOW GERMAN STEAMSHIP COMPANIES ARE PREPARING TO BUILD SHIPS FASTER AND FINER THAN THE "MAURETANIA," AND HOW ENGLAND'S PRIDE IN SEA SUPREMACY WILL INSURE STILL BIGGER ENGLISH LINERS

BY

LAWRENCE PERRY

DAY after day a man might have been found — had he not chosen a secluded place — with his ear glued against the engine room bulkhead of the Cunard liner, the *Lusitania*, coming across the ocean at a pace swifter than the Atlantic had ever before been traversed. You might have thought him to be a typical second-class cabin passenger. But he was not. He was a marine engineer in the employ of a great German steamship company and he knew a great deal more about engines which drive ships than even a highly certificated engineer is required or supposed to know. He knew engines so well, in fact, that every sound of them had for him a definite meaning.

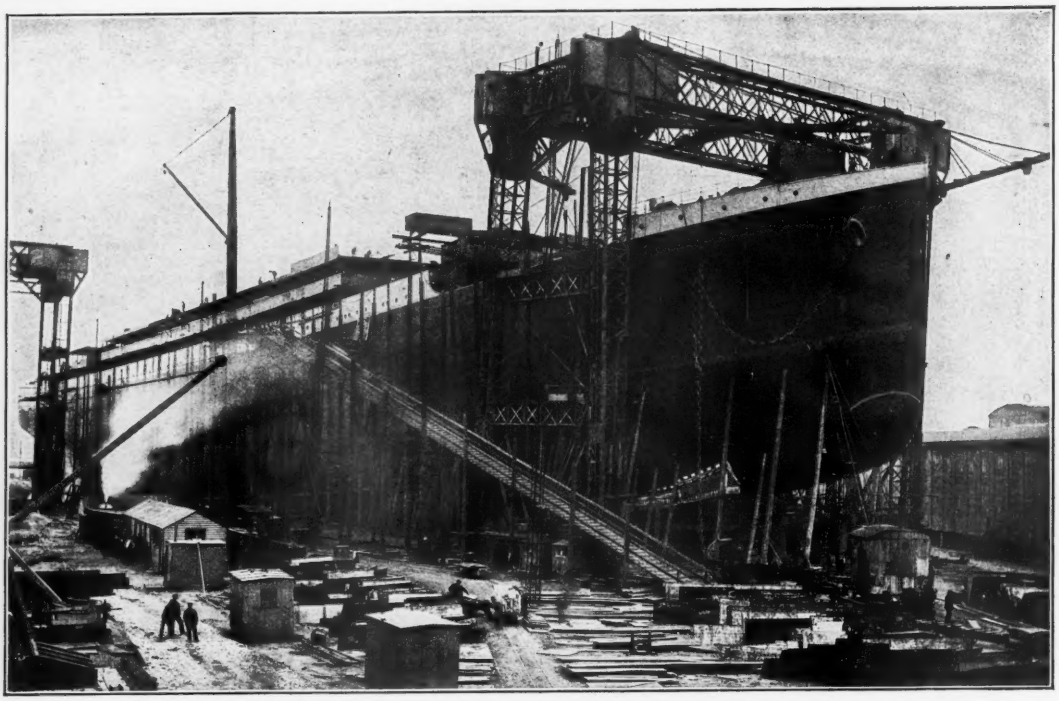
He could tell by the strokes of the engines how much coal was being consumed. His company regarded this as a curious and interesting accomplishment, but thought little more about it until the *Lusitania* made her appearance. Then this engineer's accomplishment was to prove of inestimable value.

He began to take trips on the new record-holder of the ocean, listening to the strokes of the engines, calculating, counting, familiarizing himself with the character and disposition of turbines as shown by the sounds they gave forth. For months he had nothing to report. But, at length, after the westward journey in which the *Lusitania* had crossed the ocean in four days and fifteen hours, making an average hourly speed of 25.05 knots, or about thirty statute miles an hour, he went to the American offices of his line and spoke as follows:

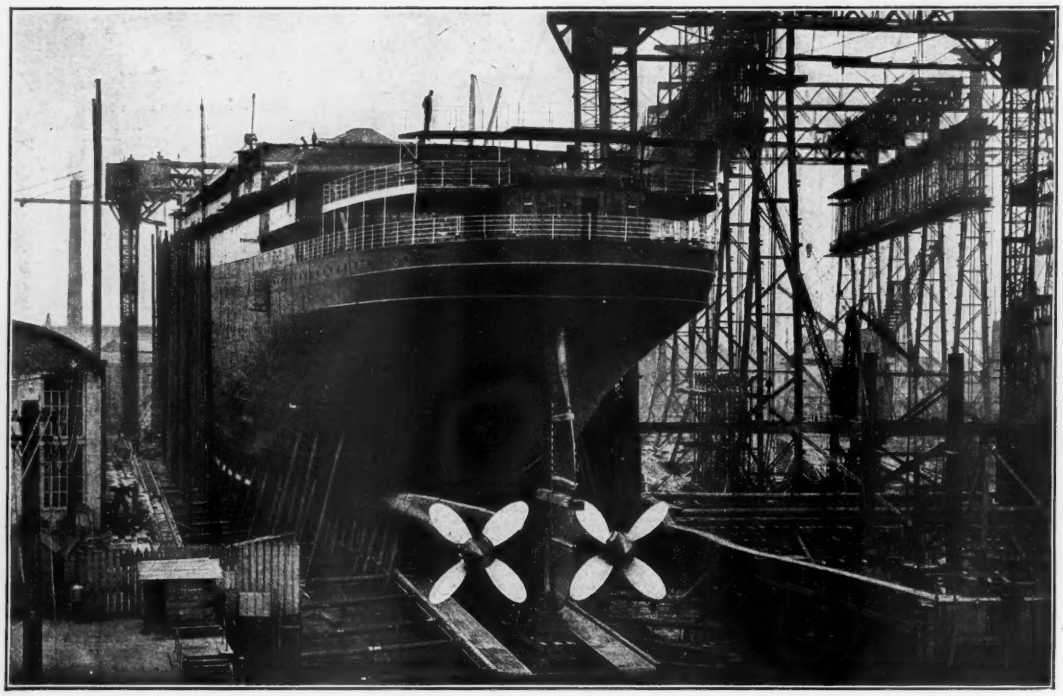
"The reports that the *Lusitania* is an immense coal consumer are false. She has never averaged 1,000 tons of coal a day since her maiden trip. On this last trip she burned only 890 odd tons a day. The *Mauretania* burns even less."

The report of this engineer, coming along with similar information from other sources, insures such a contest between England and Germany for the speed supremacy of the sea within the next few years as the world has never yet seen; and, incidentally, the manner in which information about the coal consumption and other exact data concerning the two giant Cunarders was obtained by the Germans gives hint of the keenness of the rivalry between the shipping men and the shipbuilders of the two great nations.

The presence of British experts on the German liners in the days when they were the fastest ships was regarded by the Germans



THE RED STAR LINER "LAPLAND" IN THE HARLAND AND WOLFF SHIPYARD

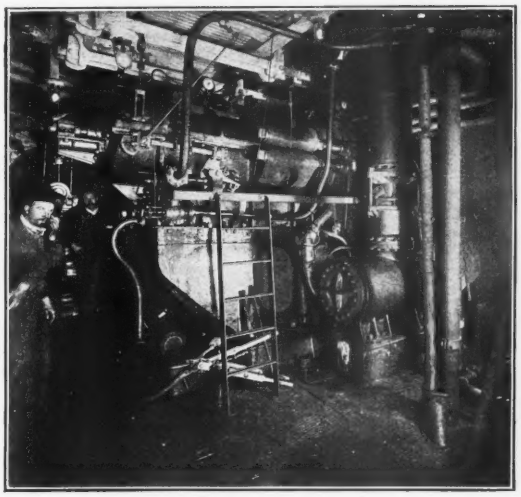


STERN OF THE "LAPLAND" AND SCAFFOLDING FOR A 1000-FOOT LINER

as a matter of course. But on the second trip of the *Lusitania* to this country, the trip on which she broke her first records, the presence of a dozen or more German engineers as passengers was not received with equanimity by patriotic Englishmen who were on board. At the Wednesday dinner on the ship, Mr. Croydon Marks, a member of the British Parliament, in the course of a congratulatory speech pointed to the Germans and with a voice shaking with emotion said:

"England once more rules the sea; and we have to thank not only Mr. Parsons, who perfected the turbine, but the Cunard line and the British Government which financed this magnificent undertaking despite the sneers of German engineers, such as are now aboard this vessel taking notes and gathering information on the advanced science in shipbuilding."

Not infrequently London or Liverpool news-



PART OF A TURBINE ENGINE

The swiftly revolving engines of this design, involving the same mechanical principles as the old-fashioned wind-mill, take up much less space than the older type with cylinders and pistons

STOKERS IN THE DEPTHS OF AN OCEAN LINER

The Cunard Steamship *Lusitana* has 128 doors to the furnaces under the boilers that supply steam for the turbine engines and 450 stokers and cinder shovellers tend the fires on a voyage

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A BIG LINER TAKING A PILOT ABOARD

The big liners are steered through the channels of lower New York Bay and up the harbor by local pilots, who board the ships in the rough water outside

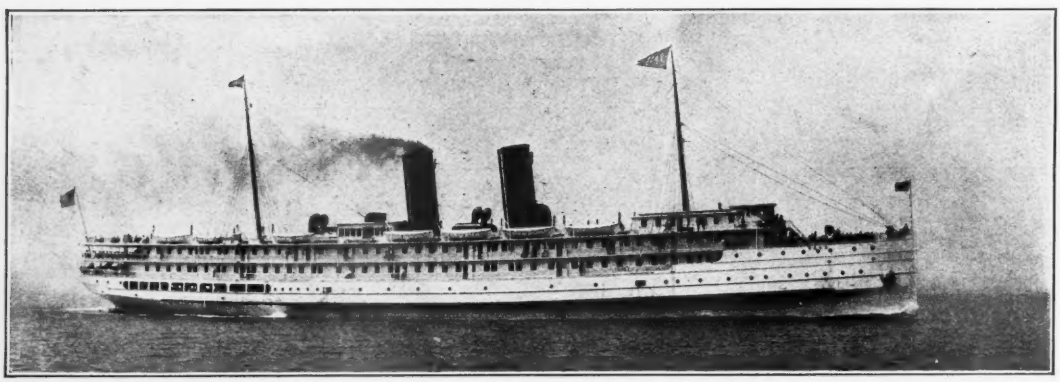
papers print stories of the forcible ejection from the *Lusitania* or the *Mauretania* of men against whom evidence had been discovered that they were German spies while pretending to be honest stokers, oilers, or firemen.

This contest adds to the joy and excitement of the world; and will continue. It will not be long before serious rivals to the *Mauretania* and the *Lusitania*, rivals which fly the German flag, will be racing across the Atlantic in competition with them. And they will be driven by turbines, too. More than that, they will cross the ocean at an average speed of twenty-six knots, and will be, perhaps, nine hundred feet long. What the British will do after that is open to conjecture. They will do something, however, for they are already preparing for such an event. In the meantime, let us consider the present status of the contest.

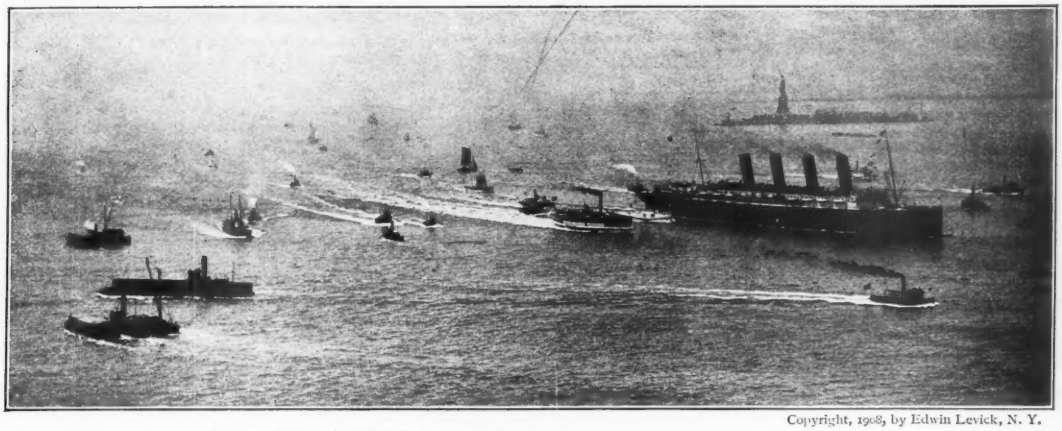
THE REALIZATION OF ENGINEERS' DREAMS

When the *Lusitania* and the *Mauretania* entered the trans-Atlantic service, they proved the theories of which naval architects and marine engineers had dreamed since the mastering of the ocean began — the combination of luxury, size, and speed in one hull. The Cunarders are twenty-five-knot, four-and-a-half-day boats. They are also palaces. And they are so large that when seen from the deck of a smaller vessel or from a point of vantage along the water front they make comparisons with other boats difficult. Luxury, size, and speed — do these represent the maximum? And what next? Have inventiveness, engineering resource, mechanical genius spoken their last words? Not yet.

Orders for the projected 800-foot Hamburg-American liner, the *Europa*, which was to dis-



THE "YALE," A 22-KNOT AMERICAN STEAMSHIP FITTED WITH TURBINE ENGINES



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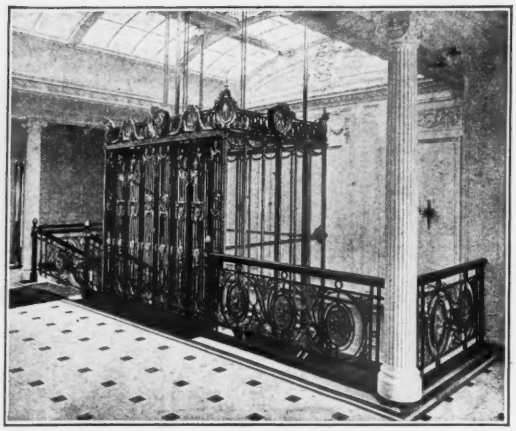
THE "LUSITANIA" COMING UP NEW NEW YORK BAY

place 48,000 tons, and to exceed the Cunarders in size, luxury, and speed, were withdrawn for the time being because of the extraordinary triumph of the turbine over the reciprocating engine; and the plans of the International Mercantile Marine Company to build its projected *Gigantic*, a ship 1,000 feet long with other measurements in proportion, remained on paper — and wisely. Successful as the *Mauretania* and the *Lusitania* had been so far as the breaking of records was concerned, it would have been rash to say that in all

BIDDING GOOD-BY TO FRIENDS AS AN OCEAN LINER BACKS OUT FROM HER DOCK



"TOP FLOOR" OF THE LINER'S ELEVATOR

OPEN AIR CAFÉ FOR OCEAN VOYAGERS

PART OF THE SUMPTUOUS EQUIPMENT OF THE TURBINE LINER "LUSITANIA"

essential particulars boats of their type had passed from the tentative to the final stage.

When the *Europa* was being discussed, and when the *Lusitania* was breaking her records for the first time, one of the great steamship men of the world, Mr. Gustav H. Schwab, of

IN THE TURKISH BATH OF THE WHITE STAR LINER "ADRIATIC"

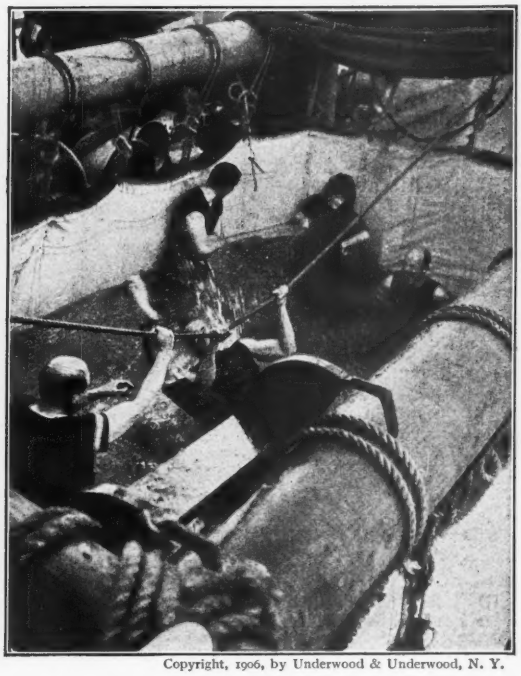
GYMNASIUM ON WHITE STAR LINER "ADRIATIC"

the North German Lloyd Steamship Company, consented to speak of the performance of the Cunard liner as viewed by a man from whom the speed laurels of the sea had just been snatched by rival shipmasters.

"Is she a successful boat?" he replied in

IMPRESSIVE NAVAL ARCHITECTURE

The main saloons of the newest ocean liners have the proportions of hotel rotundas



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AN IMPROVISED SWIMMING TANK

On some of the lines running to South America, diversion for passengers is furnished in this way

response to a question. "Well, she is the biggest and swiftest ship in the world. There is no doubt about that."

cost to operate. The Cunard line does not inform us. Until we find out, the future is indefinite so far as new vessels are concerned."

ENGINE ROOM OF THE "KRONPRINZESSIN CECILIE"

"Will the Germans build similar boats?"

"When we know certain things we shall decide whether or not it is wise to build similar boats. We do not know now how much they

These words were spoken nearly a year ago, and there is reason to believe that the future is more definite than it was then. Recently Mr. Schwab was asked:

"Have you yet formed any views about the future? Do you intend to contest the supremacy of the *Lusitania* and the *Mauretania*, or do you feel that they have attained the limit of speed and size? Have you dropped out of the race for good?"

"Do you suppose the North German Lloyd line intends to be buried?" he replied. "We hear that instead of being losers of money the Cunard ships are really profitable. At all events, do not think for a moment that the Germans are out of this race."

His words revealed the indomitable purpose which the German steamship men will show when, after they have arranged their plans, they enter once more the contest for the blue ribbon of the sea. The maritime rivalry between England and Germany is one of the real, vital, living, thrilling things of this age of wonders.

The Germans are inspired chiefly by the desire to attract passengers. In other words, they long ago demonstrated to their own satisfaction that a record-breaking vessel is a paying investment. When the Vulcan Shipbuilding Company at Stettin took the development of the reciprocating engine out of the hands of the British and built the swiftest boats, the Hamburg-American and the North German Lloyd companies fought the battle between them until, in the Hamburg boat, the *Deutschland*, and the North German Lloyd, the *Kaiser Wilhelm II.*, the evolution of the reciprocating engine practically reached its limit. That was the only reason the two companies did not immediately order vessels to compete with the Cunarders.

"What will you do about it?" one of the chiefs of the North German Lloyd Company was asked the day after the *Deutschland* had broken the records of the *Kaiser Wilhelm der Grosse*.

"Do? Why, build a ship to beat her, of course," was the reply. And it was done.

THE FASTEST STEAMSHIPS PAY

Early in September on the floor of the New York Maritime Exchange a group of steamship men were discussing the old question whether the Cunard liners were profitable. Most of them felt that but for the subvention of $750,000 a year which the British Government allows them they would prove losing ventures.

"I will show you this is not so," said a representative of a German Company. He thereupon produced figures which showed how closely his company had studied the subject. Not the minutest detail had been overlooked. "Now," he added. "I will show you that the possession of a record-breaking ship is so good an advertisement that it attracts passengers to all the other vessels of that line that own the fastest ship, no matter how slow they may be." And, taking the Cunard line as an example, he produced figures which demonstrated his point beyond doubt.

But, if the Germans contend for supremacy because of the profit, the British have other reasons also. The insular isolation of Britain has ever made ships a national necessity as well as a national fetish. The British marine spirit made the Government lavish hundreds upon hundreds of thousands of dollars upon inferior boats in the losing fight of the Cunard against the American Collins line, in the late forties. It is the spirit which produces *Dreadnaughts*, and keeps the naval vessels of British construction and formidableness three and four years in advance of the warships of all other nations.

"Ships, ships, ships," once cried a British statesman in Parliament. "By them we exist as a nation, by them we advance, by them we exalt our national dignity. In area England is small, but England owns the Atlantic — the Atlantic is a British pond."

There was meaning in this boast. Forty thousand patriots lined the great Prince's Landing Stage at Liverpool to see the *Mauretania* start on her maiden trip to the United States; and, when the vessel backed out into the Mersey and the police lines were relaxed, the enormous crowd, cheering and singing, surged upon the pier crying:

"Beat the Germans! Beat the Germans!"

All England went wild with joy when the *Lusitania* broke all ocean records. Germany beaten and relegated to its proper place! For German success meant more than a preponderance of American patronage; it meant the dawn of a sea power to contest with England her dearest possession — trans-Atlantic supremacy. The victories of the new Cunarders, therefore, were events affecting not only two or three steamship lines; they were occasions of international significance. And back of all these facts was the meaning that the swift White Star boats, carrying thousands upon thousands of reserves, had saved to Great Britain the province of Natal in the Boer War,

and that the new Cunarders could each carry an army corps anywhere.

For such political and patriotic emotions the Germans cared not a whit; but they were keen to find out the economic value of these new boats, nor had they long to wait. On her maiden trip, the *Lusitania* carried 486 passengers in her first cabin, and 483 passengers in the second saloon. Thus in attracting passengers to the Cunard line the value of the swift ship was immediately manifest. In the previous weeks when the homeward rush of Americans was at its height the *Etruria* had carried only 396 first cabin and 213 second cabin passengers. The *Carmania* had carried in the rush season only 300 first saloon and 249 second saloon passengers. The *Campania* had taken over 372 first and 305 second cabin patrons. The advent of the *Lusitania* increased the first and the second cabin patronage of the line materially. It was the first time for the year 1907, indeed, that the Cunard line's first cabin list on any of its New York–Liverpool vessels had reached 400. Eastbound, the *Lusitania*, on September 21st, carried 312 first cabin passengers. Three days before, the North German Lloyd Company's palatial ship the *Kronprinzessin Cecilie* had sailed eastward with 146 passengers in her first saloon. On her passage ending September 10th, the *Mauretania* carried 900 passengers in her first saloon — the greatest number of patrons ever carried on a Cunrad vessel.

These facts show as nothing else could the influence of record-breaking ships upon the public mind. The two giant Cunarders have carried first cabin and second cabin passenger lists larger, with few if any exceptions, than those of the German liners.

In short, the influence which large and swift and palatial boats exert upon the volatile public is indisputable. The *Lusitania* and the *Mauretania* only furnished additional proof of this. But, in addition to their functions as passenger collectors and stimuli to national pride and in addition to their political value, could it be said of them that they were desirable additions to the fleet for purely business reasons? In other words, do they pay? Not that this matters greatly to the Cunard company with a spendthrift government at its back. Still, if vessels of the *Lusitania* type are to survive, they must demonstrate their earning capacity, at least to the satisfaction of the Germans. Their Government gives the German companies no subsidies.

It has now been shown that the Parsons turbines as applied in the Cunard leviathans are more nearly perfect than the Germans had imagined, and it may be said upon the best authority that experiments of a most exhaustive nature are in progress at Stettin. A project is under consideration whereby the turbine system will be applied in the hull of one of the swiftest of the German liners, as an experiment. All this gives a hint as to the ardor with which the continental steamship men are following up the contest.

STILL SWIFTER LINERS OF THE FUTURE

Since it is a mere matter of time before rivals of the *Lusitania* and the *Mauretania* will appear on the ocean, it is important to consider these craft of the near future. They will exceed in size the Cunard vessels. Of that there is no doubt.

The *Lusitania* and her swift sister are 790 feet long, the largest vessels ever built. But their bulk was not the result of a desire to have them immense; for their dimensions were decided upon merely because the great length and beam and depth were regarded as necessary in the production of the speed required, twenty-five knots.

If, therefore, the forthcoming German boats shall be less than 900 feet long, the estimates of shrewd steamship men will have gone far astray. It may be interesting to mention here that the new German piers in Hoboken have been built 900 feet out into the Hudson River. This removes one objection to boats of augmented length, the lack of satisfactory docking facilities. The other objection, lack of water of sufficient depth in New York harbor, also disappeared when the Ambrose channel was dredged. The Cunard liners drawing thirty-seven feet have no difficulty in making their way into port. A 900-foot boat need not have a maximum draft of more than thirty-eight feet.

The question of driving these immense hulls at a record-breaking speed concerns the engine builders. To gain 1.47 knots in average hourly speed it was necessary to increase the horse-power, 45,000 — that of *Kaiser Wilhelm II.* — to 68,000 or 70,000, that of the *Lusitania* and of the *Mauretania*. With the turbines it will not be necessary to increase the power so greatly to gain another knot in

speed, but turbines generating 75,000 to 80,000 horse-power will have to be built. The *Lusitania* cost $6,500,000 to build; a larger boat of increased power will cost at least a million more. Officers and crew aggregating 850 men are necessary to run the Cunard liner, and the cost is more than $200,000 a round trip. Nine hundred or a thousand men will be required on a vessel designed to exceed her in size and speed. Motive power, bunkers, boilers, and the like take up considerably more than half of the space of the *Mauretania* and the *Lusitania* so that their cargo capacity is small. Thus of the usual sources of revenue of a great steamship, viz., passengers, freight, mail, and subsidy, the Cunard ships and vessels built to defeat them must go without the greatest earner of all — freight. The question of the further development of mammoth, record-breaking steamships is whether the passenger capacity and the mail receipts of the Cunarders would afford a return upon the investment, not counting the subvention of $750,000 each, which the British Government pays to the company.

Including the immense advertising value of such vessels, those of the *Lusitania* type do pay, and craft larger and swifter will pay and pay handsomely. The International Mercantile Marine Company has for some time been considering seriously the building of a liner 1,000 feet long. That such a boat is an engineering possibility Mr Pirie, the head of the Harland & Wolff Shipbuilding Company of Belfast, has admitted. Facilities at this shipyard, stocks and the like, have been built to admit of the construction of a 1,000-foot liner.

"We shall have a boat of 1,000 feet waterline length in good time," said Mr. Bruce Ismay, president of the International Mercantile Marine, on his last visit to this country. "She may be fast; she may be slow — that is to be determined; but, fast or slow, Mr. Pirie tells me he is willing to undertake a contract for her construction. That is the main thing."

In the meantime the White Star company has ordered a vessel which will be 830 feet long, 88 feet wide, and of 40,000 tons displacement. She will be called the *Olympic* and will be fifty feet longer than the *Mauretania* and 8,000 tons larger. She will be the largest vessel ever seen, but will not make more than twenty knots speed, the White Star Company adhering to its principles of large, comfortable ships. At the Harland & Wolff yards new docks and enormous steel scaffoldings, 1,000 feet long and 74 feet high, are being built in order that this leviathan may be constructed. Certainly, with plans for the *Olympic* thus under way, the 1,000-foot boat does not seem far off.

Marine naval architects say that a liner of this length need not be so deep as to prohibit her entry into the ports of England or America. By giving the vessel plenty of beam a 1,000-foot vessel drawing only thirty-five feet, or less water than the Cunard liners draw, is entirely practicable.

British engineers still have their eyes on the turbines, an indication that they do not intend to sit still and allow the Germans to carry on the work. There is yet a great deal more vibration than is desirable and the question whether three propellers rather than four — the *Lusitania* made one of her best trips with three screws — is more conducive to record-breaking speed is a vital one. It is maintained that turbines do not admit of as prompt and exact manœuvring of a great hull as reciprocating engines.

The first practical test of the combination reciprocating and turbine engine has been applied in the *Laurentic* of the White Star line, launched from the Harland & Wolff yards at Belfast last September. The arrangement of machinery constitutes the vessel a three propeller steamship. Each of the two outside propellers is driven by four-crank, triple-balanced reciprocating engines and the central propeller by a low pressure turbine. The object is to retain the advantages of the highly perfected reciprocating engines and at the same time to get the benefit of the further expansion of steam in a low pressure turbine. The boat should manœuvre easily, but will be neither swift nor especially large, being designed for the Canadian trade. It is maintained that speed cannot result from such a combination.

Such tests, however, are generally regarded as without value until the turbine has been perfected to a final degree and it is found out what is the utmost that it can do. The British have also conducted tests with oil burning engines; and, while they have proved economical, they have been adjudged not adapted to the requirements of great record-breaking liners. In the oil burners jets of flame are shot through the boiler pipes, and the

water is thus heated. Provided the Germans eventually excel in the developing of the turbine, as well they may, they may find when apparently upon the pinnacle of success that the English have yet another card to play, and one which will solve the problem of motive power for ocean liners for all time. This is suggested by the experiments which the British Government is now conducting with the suction gas engine, the advantages of which, as so far demonstrated, are that no stokers are required; that cheap coal — lignites — may be used, and that with an equal amount of coal consumption the gas engine will develop power 50 per cent. greater than that of steam. The British have been proceeding carefully in this matter, but the wonderful success of experiments in the obsolete battleship *Rattler* brought the matter to the public mind.

In engines of this type there is a boiler-like compartment into which the coal passes from a hopper on top of it. Stoking is thus mechanical. This boiler is like a pot stove, only much larger, of course, and the coal burns in it just as a banked fire burns in a furnace. Into this a glowing mass of coal air is introduced from a pipe running into the bottom of the furnace. From a small boiler attachment, steam is also let into this burning coal. The air and the steam percolating through the coal gives forth an unstable gas, carbon monoxide; and the steam disintegrating eventually supplies hydrogen. The gases thus formed pass out of the furnace, or producer, into what is known as a "washer," a cylindrical tank, adjoining the producer. In this "washer" jets of water clean the gas which then proceeds into a scrubber, or filter, where the gas is further relieved of tar and other elements. From the scrubber the gas flows into a centrifugal pump which takes out of the gas any liquid substance that remains. The gas then goes into the engine and the heat is there converted into physical energy. The air is drawn through the coal by the suction of the engine, so that gas is made only as needed by the engine. The gas being made in this way there is no pressure, and thus no gas can escape into the vessel.

This engine is described in detail because, in the opinion of British experts and of such an American engineering authority as Mr. Lewis Nixon, it marks the end of all other propulsive machines for big and swift boats. We, therefore, in the future may look for *Mauretanias, Gigantics, Titanics,* and big *Kaisers* driven not by turbines, but by gas producing engines. Mr. Nixon estimates that with engines of this type in the United States Navy the annual coal bill of about $2,100,000 could be reduced a million dollars.

A REVOLUTION BY THE GAS ENGINES

Mr. Nixon, who is one of the foremost of the world's naval constructors, has led the way in the application of gas and gasolene as fuel for warships and merchant vessels, and he is a thorough advocate of the gas engine as a means of propulsion for all vessels. He has made this statement for this article:

"I have experimented with a soft-coal producer at a factory within fifteen minutes of New York City," he said, "and have reduced the consumption of coal one-half. This is not a case of nursing to get results but regular factory work, day in and day out, in power-making service.

"I look to see all large power plants and pumping plants use the gas producer and the gas engine from now on. In Europe, where they eat closer to the rind than we do here, the economy and adaptability of the gas engine is recognized and its use is growing by leaps and bounds.

"The opening up of tropical rivers through sections of country where railroad construction is met by almost insurmountable obstacles is of great importance in world development. The marine boiler is short-lived in such waters and steam service most trying. I find the gas engine using gas made from charcoal or ordinary wood will be the solution of this vexatious problem and its adoption a boon to those who must run the machinery, while the saving will be tremendous.

"While exerting every effort in developing trade that our international balances shall be favorable to our credit, we waste many millions in fuel. Those who are giving their time and energies to this development will probably reap only a meagre reward in actual return or even in credit, as the revolution, while sweeping, is gradual, but the satisfaction that comes from a substantial addition to the material welfare of mankind is not measured by these.

"It must not be assumed that gas engine and gas producer construction are matters still requiring research and further use and experi-

ment to establish their use as workable prime movers. They have passed the experimental stage and numerous makers can be found who will install and guarantee power plants.

"The development has come so rapidly, however, that this busy world in the rush of invention and the supplementing of man's powers by the aid of the application of natural forces cannot note a development even so striking and all important as this.

"The development has progressed to such an extent that we can confidently claim that we can cut the world's coal bill in two and that we can use economically and efficiently lignites and inferior coals that cannot be used advantageously under a boiler.

"The wonderful impetus has no doubt been given by the use of the automobile. This miracle of the nineteenth century has not only enabled men to move in comfort and safety along ordinary highways with the speed of a railway train under perfect control, but it has brought about a mechanical renaissance and exalted the machine as a part of man's daily life and as a necessity of modern civilization.

"Hundreds understand and can run a gas engine where one can run a steam engine.

"On the water it has brought a startling change. Old men to whom stiffened joints and waning strength seemed to bring an end of usefulness find new strength at hand and earning-power extended. The *put put* of numerous motor boats in useful work means much to the observer. This will soon pass to larger vessels on sea and greater powers on land and all tend to reduce one of the greatest and most unpardonable of vices — wastefulness."

Where the competition between Great Britain and Germany for the speed supremacy of the sea will end, only a person endowed with prophetic powers can say, but that England will continue to improve its ships indefinitely may be gathered by a glance at the past.

When the Collins line failed, in the early fifties, America's opportunity to take from England the proud title of Mistress of the Seas vanished. The Collins company had produced ships which crossed the ocean in nine days and a half, or a day and a half more quickly than the Cunard boats could do it, but the withdrawal of subsidy brought the fight to an end and left Great Britain to develop her maritime power without molestation. It was the first great contest for trans-Atlantic supremacy and it demonstrated that money thrown into hulls and engine-rooms returned twofold to the tills of the booking offices, and also that freights follow close on the heels of passengers.

While the British shipping men produced *Arizonas*, *Alaskas*, *Teutonics*, *Etrurias* and the like, which steadily reduced the time of ocean crossing from eight to six, and then to five and a little more, the American public enthusiastically paid the money which made such progress possible. Two-thirds of the cabin patronage in these vessels came from the United States; and at the present time this is true of all trans-Atlantic lines, whatever their nationality. Without this patronage there would be to-day no *Mauretania*, no *Lusitania*, and perhaps there would be no ships capable of crossing the ocean inside of seven days.

In 1891, Germany became a real menace to British complacence. From the Vulcan shipyards in Stettin, where German architects and engineers had been studying, planning, and experimenting, there came the Hamburg-American line steamship *Fürst Bismarck*. In point of size, luxury, and speed she was superior to any steamship afloat, and she broke every record that existed.

In alarm the British produced the *Lucania* and the *Campania*, which restored their prestige. That is to say, the lost passenger traffic was won back by the Cunard ships. But there was little enough time in which to wear the laurels and to enjoy the profits thus retrieved. The North German Lloyd steamship *Kaiser Wilhelm der Grosse* followed them close, and the *Bismarck* repeatedly broke every existing ocean record until there was nothing but her own past performances against which to compete. Her cabins were crowded — mainly with Americans — month in and month out and with all the perishable freight that she could carry.

While the British sat paralyzed at the suddenness and effectiveness with which the laurels had been wrested from them, the Hamburg-American Steamship Company brought out the wonderful *Deutschland*, which crossed the ocean, the long course of 3,112 miles, in 5 days, 7 hours, and 38 minutes. Of her it was said that she marked the limit of power of the reciprocating engine, and events have seemed to prove this assertion true. In an effort to take the record from her, the

North German Lloyd line launched in succession the *Kronprinz Wilhelm* and the *Kaiser Wilhelm II.*, neither of which succeeded in defeating the *Deutschland*, although the *Kaiser Wilhelm II.* gained for herself the credit of making the highest hourly average across the Atlantic, 23.58 knots.

The Germans had gone into this business of trans-Atlantic racing with the broadness of mind which brings success. Their swift vessels were palatial. Captains made it their business to know their passengers by name, and to greet them the next time they sailed with them. The British idea that a patron should accommodate himself to the requirements of the ship was ignored by the Germans. Their theory was that the passengers' desires should be as adequately recognized on shipboard as ashore, and it was a theory that paid munificently.

The British, pointing to the amount of coal — 700 to 800 tons per day — which the fast German liners consumed, pointing, too, to the fact that a round trip of the *Kaiser Wilhlem II.* or the *Deutschland* cost not less than $180,000, declined to enter the contest. They began instead to build huge cargo boats able to cross the Atlantic in six and a half or seven days, with ample if not magnificent quarters for passengers. These were the *Cedric*, the *Baltic*, the *Celtic*, the *Adriatic*, the largest vessels then in the world, comfortable in a seaway, but slow. Fast boats did not pay, the British steamship men thought, and, taking into consideration that the Germans seemed to know more about the science of building swift vessels than the builders on the Clyde, the Tyne, and the Mersey, there was nothing else that they could say. But the record-breaking liners paid the Hamburg-American and North German Lloyd lines. That is certain. The achievements of their swift ships were trumpeted far and wide. Every trip they sailed with barely elbow room in first saloon or steerage, while ships like the *Lucania* and the *Majestic*, which once filled the public eye, made their journeys without notice and huge boats of the *Celtic* and *Baltic* type plodded along stolid, indifferent, unheralded.

This was the second stage of the trans-Atlantic conflict. In swift vessels Great Britain had been relegated to the second place. The development of the reciprocating engine had been taken out of their hands. The German engineers had won the right to further endeavor in the advancement of propulsive power. The last episode of this stage was the formation of the International Mercantile Marine Company when at one stroke four powerful British lines, the White Star, the Atlantic Transport, the Leyland, and the Dominion, were merged with the American and Red Star lines into an American corporation.

This, as may be imagined, was not received with equanimity in England. If American millionaires were about to put their resources upon the British merchant marine, taking over, as they had, all the great cargo carriers of which they had been so proud, while the Germans continued to build their record-breaking palaces, what was to become of the British nation as a commercial sea power? It was a question that disturbed the public and the Government alike. The very foundations of their national pride seemed undermined.

But, though alarmed, the shipbuilders and designers of Great Britain did not lose their heads. There were indications that in the *Deutschland* the reciprocating engine had reached its limit of propulsive power. Certainly the failure of the two larger boats that followed her must have suggested something of the kind to all who stopped to think about it. Obviously, therefore, England's further maritime path did not lead toward the reciprocating engine. Well, what engine then? The English were about ready to answer this question.

As far back as 1897, the small steamship *Turbina* had attracted considerable attention at the Queen's Jubilee marine pageant. By the time the International Mercantile Marine coup was made, the turbine had been developed to such an extent as to warrant its use in the British cruiser *Amethyst*, a vessel of 14,000 horse-power. If the Germans were to be overtaken, engines developing 68,000 to 70,000 horse-power must be perfected. In the reciprocating engine this was a sheer impossibility. The turbine was the single alternative. The task of devising turbines to generate this immense horse-power may be imagined. A Government commission was appointed, extensive model tests were made, and at length turbine engines of 21,000 horse-power were recommended for the Cunard liner, the *Carmania*, then in process of construction. Her sister ship, the *Caronia*, was

fitted with engines of the old type and the superiority of the motive power of the *Carmania* over that of her sister left no further doubt that in the development of the turbine lay all of England's maritime hopes.

With doubt thus removed, plans for the *Lusitania* and the *Mauretania* began to take shape. First of all there was the question of funds. The Cunard Company might have found the outlay required for the construction of the two liners as conceived in the minds of British designers and engineers entirely beyond its means. But the Government, which had assisted in the turbine experiments not only financially but in the loaning of its naval experts, was not only ready but eager to assist in the great project to wrest the commercial supremacy of the sea from Germany.

A contract was therefore made between the British Government and the Cunard Company whereby the company was bound to build two steamships to average 24¾ knots an hour across the ocean, and ever to be held at the call of the Admiralty in case of war. The Government on its part was to advance $13,000,000 for the construction of the liners at the extremely low interest rate of 2¾ per cent. It was also stipulated that, in the event of the vessels averaging twenty-five knots, the proprietary company was to receive an annual subvention of $750,000 for each ship — generous terms, surely.

Their launching within a month of each other was attended by all the pomp and circumstance fitting such momentous events, and several months later they were both on the ocean, breaking all existing records. While the Cunard Company finds in them sources of increased income, the British Government regards its part of the investment with peculiar satisfaction. For at the beck and call of the Admiralty in the event of war are two of the swiftest vessels in the world. As scout boats for the navy which no battleships, or cruisers and few torpedo boat destroyers could overtake, they would prove of inestimable service, while as transports, each capable of hurrying five thousand soldiers to any foreign shore in the shortest possible time, their value is plain. This is why the British Government lends and gives millions for swift boats and why it will continue to do so in the future.

JAPAN WINNING THE PACIFIC

CHEAP SHIPS, CHEAP LABOR, AND CHEAP FOOD HER WEAPONS — HOW THE AMERICAN TRANS-CONTINENTAL RAILROADS ARE CRIPPLED — THE MEANING OF SUEZ CANAL COMPETITION — THE STORY OF A FUTILE EFFORT TO MAKE THE AMERICAN FLAG SUPREME ON THE PACIFIC

BY

EDWARD G. BOGART

A FEW weeks ago, Mr. E. H. Harriman returned from a visit to the Pacific Coast. Concerning the Oriental trade he had this to say:

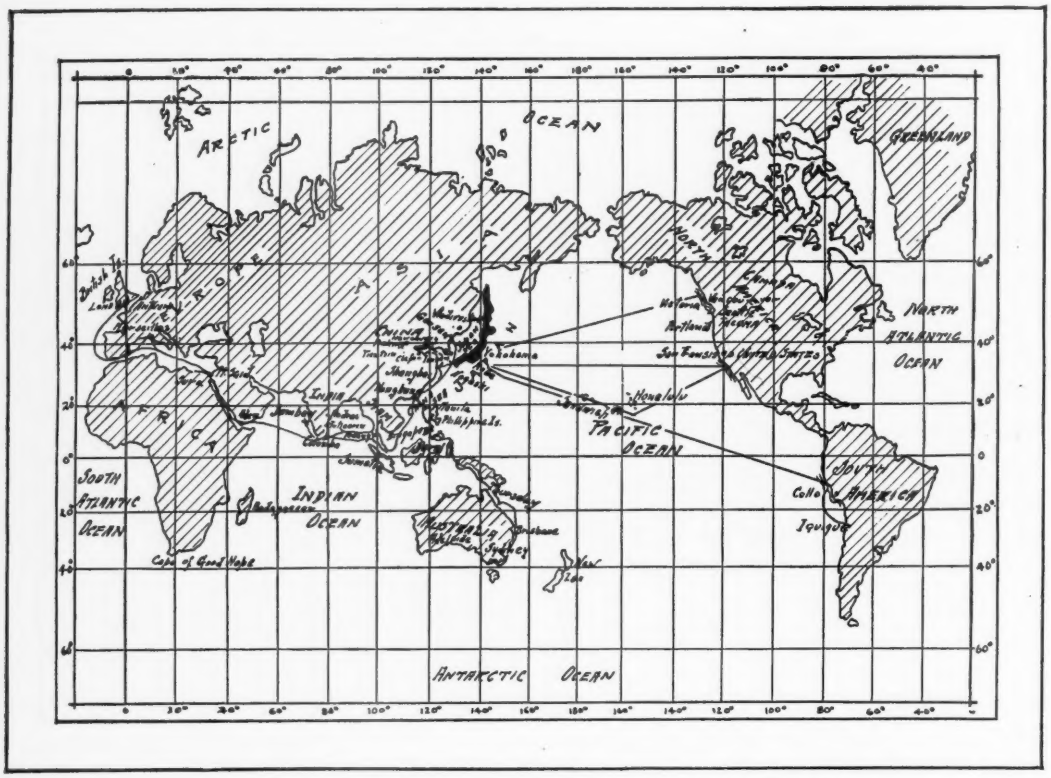
"Mr. Hill has learned his lesson. He has only one boat running. We have five or six, but I don't mind saying that we carry air half the time."

Lying on a rocky reef at the entrance to a Japanese harbor is the wreck of the giant *Dakota*, built by Mr. J. J. Hill five years ago to revolutionize the traffic of the Pacific Ocean. She will never be replaced. She lost money for her owners while she was afloat, and few mourned her loss except for purely sentimental reasons.

In the markets of the world the entire property —ships, docks, franchises and good-will—of the Pacific Mail Steamship Company (an American corporation) is quoted at less than $6,000,000. That is on a basis of about $51 per ton for the ships alone, without counting the splendid docks, rights, and franchises. The Census shows the average value of steam tonnage in this country to be $58 per ton, for ships alone. Clearly, the magnificent tonnage of the Pacific Mail goes begging in the markets. These two vital facts tell the story of American commerce on the Pacific.

It is rather a melancholy story, this tale of commercial enterprise. It means fifteen years of hard and discouraging work thrown away, a few millions of capital wasted, a few dreams gone wrong. The Pacific Coast has had a few ecstatic moments over it. The citizens of Seattle will long remember August 31, 1896, when the first ship of the Nippon Yusen Kaisha docked at that port to take the first cargo of freight under the contract with Mr. Hill's Great Northern Railroad. Four years ago, the commercial world gaped at the mighty bulk of the *Dakota* as she slid from the ways at New London, Conn., destined, so the people thought, to revolutionize the trade of the Pacific. The first sailing of Mr. Hill's giants was made another occasion of rejoicing. Exclamation points and many other evidences of joy emphasized the description of her cargo, the biggest single cargo of freight ever shipped from a Pacific port. And now her skeleton lies rusting in the surges of the Japanese coast. She gave to Mr. Hill a few proud moments, and no end of hard figuring to make ends meet.

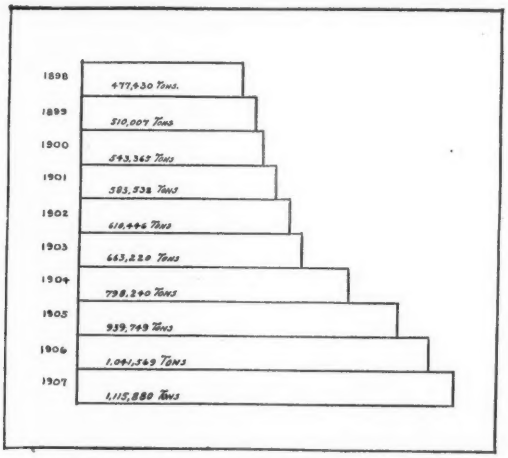
So passes the glory of the biggest ships afloat that carried the Stars and Stripes. The sister ship continues on the Oriental route, losing money steadily, but carrying American produce in an American bottom. How long it will last depends on the patience of the Great Northern road and Mr. Hill, and on the possible willingness of somebody or other to buy the ship at a very greatly reduced cost.



JAPANESE STEAMSHIP LINES HALF AROUND THE WORLD

The enterprise of private capital, aided by Government bounty, has pushed the main lines of Japanese maritime traffic to England, India, Australia, the United States, and South America. This has been done in fifteen years

The United States, so far as liners tell the tale, still rules the Pacific, or our side of it. The tonnage of the Pacific Mail, the Boston Steamship Company, and the Great Northern combined—under our flag—far overtops all the other tonnage owned by other nationalities. The Canadian Pacific fleet, with its 30,000 tons or so, little exceeds the tonnage of Mr. Hill's one remaining ship. The three



JAPANESE MERCHANT MARINE TONNAGE

The diagram shows the steady increase of Japanese-owned ships during the decade, in spite of wars and national poverty

great Japanese liners out of San Francisco, added together, total only 18,600 tons, while the Pacific Mail operates two ships of 27,000 gross tons apiece, and five others that total 64,700 tons in all. The Japanese, Canadian, and German liners together barely equal the tonnage capacity of the three biggest American ships, the *Minnesota*, the *Manchuria*, and the *Mongolia*.

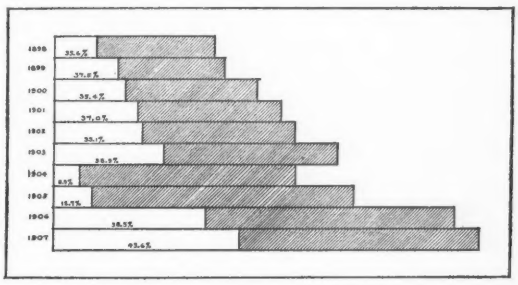
But these are merely figures. The grim fact of the matter seems to be that the trade on the Pacific out of our ports in our ships is a losing venture all around. A dozen "tramps" from English docks are ready to bid for every ton of trade that is not tied up in contracts before it reaches the Pacific Ocean. Any shipper of freight who happens to live within striking distance of the Pacific Ocean can get his goods delivered to the Orient, quickly and well, cheaper than the giant liners can take it for him. If his freight has to come across continent on the railroads, it pays him to use the big lines, because then he can get a very low rate on the rails; while if he tries to ship to a Pacific port for export, intending to give his freight to a tramp, he is charged a much higher rate on the railroad.

COMBINED INLAND AND OCEAN RATES

To illustrate the extremely delicate nature of this artificial traffic thus built up, it is only necessary to refer to a fact well known in the inner councils of the transcontinental railroads, however little the average citizen may know about it. About six years ago, Mr. Hill and his people, being mightily interested in the *Dakota* and the *Minnesota*, determined to fill them at any cost. They went after, and got, a huge amount of traffic that in former times had gone to the Orient via New York and the Suez Canal. To get it they threw their rate schedules to the winds. On many thousands of tons of freight they made a through rate, from Philadelphia, Pittsburg, Detroit, or any other place, lower than their rate from that point to Seattle. In other words, if a manufacturer of iron pipe at Detroit wanted to ship 1,000 tons of it to Yokohama via Seattle and another 1,000 tons to Seattle, he paid less freight on the former shipment than he did on the latter. In effect, they gave him the haul across the Pacific free, and gave him money into the bargain.

This worked very well, so far as increasing the tonnage went. In 1902, before this scheme began, the Northern Pacific and Great Northern carried to Seattle for export only 54,211 tons of freight. In 1905, at rates that either equalled or cut the rates via the Suez Canal, these two roads carried 299,884 tons — quite an appreciable gain, one might say.

Then trouble came. The Hepburn Act of 1906, Mr. Roosevelt's Rate Bill, made it necessary to give thirty days' notice of a change of rates. That made it quite impossible to change the rates to meet the constant changes made by the Suez Canal route, which is not subject to the wonderful rulings of Congress or the Interstate Commerce Commission. In other words, the Suez agencies would know the minute that the railroads posted a new rate what that rate was and they could wilfully make it look silly by cutting below it as far as they liked. When the railroads found this out, it would take them another thirty days to come



JAPANESE SHIPS IN FOREIGN TRADE

The diagram shows the percentage of total foreign trade carried in Japanese ships; and illustrates in a striking way the effect of the war and the sudden resumption of Japanese maritime enterprise after the war

back with the next cut, and in the meantime the Suez routes could make whatever rates were needed to get the traffic, and get it.

THE SURRENDER OF THE RAILROADS

On top of this, the Interstate Commerce Commission showed signs of a worthy desire to ask that the farmers, shippers, manufacturers, and others interested in internal commerce get the advantage of these wonderfully low rates that the railroads were making to the Orient. In other words, the railroad people began to be afraid that the first thing they knew the Commission would order them to make domestic rates based on their export rates, which, in turn, were really based on the rate via the Suez Canal. Not being willing to risk being ordered to make rates from Detroit to Butte based on the rate by sea from New York to Suez, the railroads withdrew their low Oriental rates, and decided to make the minimum rate to the Orient the regular domestic rate from the point of shipment to the Pacific Coast.

Mark the result. This ruling went into effect in 1906. In that year, the tonnage over the Great Northern and the Northern Pacific, which had leaped to nearly 300,000 tons in 1905, dropped to 89,599 tons. In 1907 it still further dwindled to 61,411, and in 1908, according to the best information obtainable, it will be still lower.

Early this year the big railroads interested in this traffic protested to the Interstate Commerce Commission, and told them that they simply could not carry on business if they had to give thirty days' notice of a change of rates — a fact that, one would think, ought to have been clear enough to the Commission without being told. On June 1st, the Commission granted the request of the railroads, which now have to give only three days' notice of a reduction or ten days' notice of an advance in these rail-and-ocean rates. This will probably operate to protect the railroads against the Suez routes and the tramps on the Pacific, which otherwise stood ready to cut the published rates on sight, to so speak.

But if the Commission was willing to help this staggering traffic thus far, it was not willing to go any further. The celebrated "Rule 86 of Tariff Circular 15A" still stands. This rule compels the railroads to file at Washington statements showing exactly their proportion of the through rates they make to the Orient. For instance, if their through rate from Philadelphia to Yokohama on steel rails is $10 per ton, they are compelled to file at Washington a tariff, or statement of rates, showing just how much the railroad gets, and how much the steamship gets.

The railroad people say that this absolutely destroys the Oriental trade, so far as inland shippers are concerned. Men have declared that rather than post up these rates so that all men can see them, they will abandon their contracts with the ships on the Pacific, and charge the regular rates to the Pacific ports, making no effort whatever to meet the Suez rates. That is because they are afraid that if these rates become known, "hayseed" legislation will agitate for local rates on the same basis. A second argument that they produce is that if they have to file and keep up to date a regular tariff of this sort from every possible point in the United States road their clerical work will consume "a very large part" of the profit in the trade. This statement is signed by the vice-presidents and traffic managers of every transcontinental road in the country. It is not a joke: it is dead earnest. On so scant a margin, on so flimsy a basis as this, is the traffic based of which the American people have been so prone to boast.

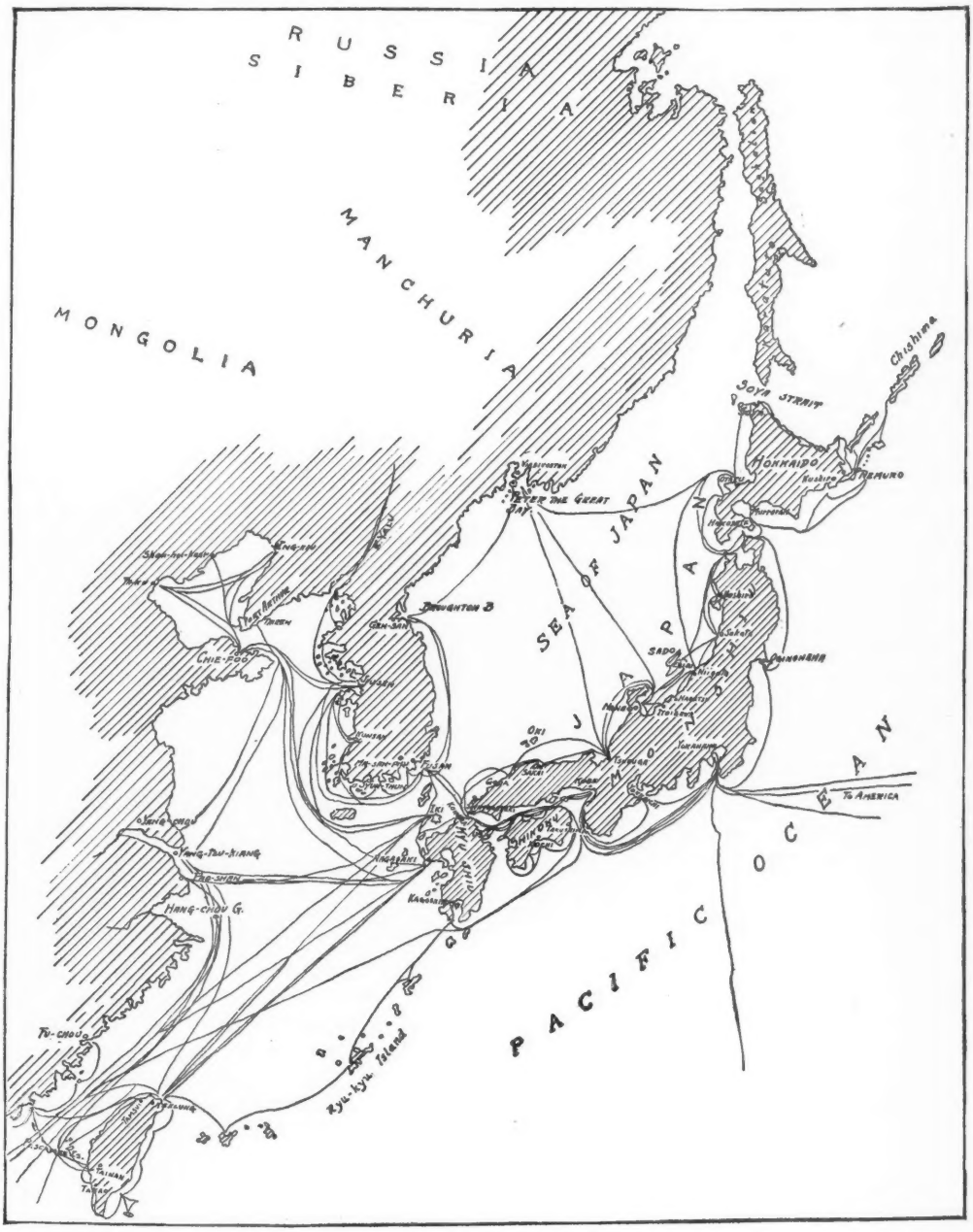
THE WEST MUST PRODUCE THE FREIGHT

That is the situation as between the Government and the railroad backers of our trade on the Pacific Ocean. It looks quite hopeless. This one fact stands out beyond cavil — that, unless the railroads and the Pacific steamers can make rates to equal the Suez Canal rates out of New York they never can build up a traffic over the Pacific Ocean. That is merely an economic fact, and neither Government nor railroad can hope to alter it. There are five powerful shipping agencies in New York that gather business for the ships that sail from New York to the Suez Canal and the Orient beyond. They are the American-Asiatic Steamship Company, Howard, Moulder & Co., Barber & Co., Funch, Edye & Co., and the American & Manchurian Line. They are active, aggressive, and more or less successful.

This being so, the true growth of American exports via the Pacific Coast cannot come to-day, nor for many years. For what Japan and China want from us is manufactured goods, machinery, finished iron and steel, raw cotton,

and manufactured cotton goods. It is idle to talk much about the trade in flour and wheat. Japan last year imported only $3,100,000 worth of wheat flour; while in the same year her ships brought in nearly $9,000,000 worth of soja-beans and $15,000,000 worth of rice. Neither this country nor any other country can sell wheat to Japan or China at a dollar a bushel. This looks like another Oriental dream that did not come true.

Now the part of this country where we make machinery, iron and steel, nails, cotton goods,



JAPANESE STEAMSHIP LINES IN THE NARROW SEAS

This system of sea-transportation, established within the space of a few years, has practically beaten the Peninsular & Oriental Steamship Company (British), and placed Japan in command of trade on the eastern litoral of Asia

and raw cotton is not tributary to Pacific Coast ports, and it can be made so only by some such artificial means as that employed by the railroads between 1902 and 1906. Machinery made in Philadelphia, for instance, will go via Suez, taking a rate nominally stated at seventy cents per one hundred pounds. It is true that the Hill agents have bid for and taken much machinery out of Philadelphia, but they had to cut below the Suez rate to do it — and it is an easy guess that they made no money on it at that. The truth seems to be that the real awakening of our trade across the Pacific awaits the growth of manufacturing in the West.

That, in the long run, an immense tonnage of American goods will go to Japan and China may be taken for granted. The true point is that this tonnage must originate along the Pacific Coast, and not East of the Rocky Mountains. To illustrate this point, it is perhaps only necessary to point out that two of the most profitable lines of traffic from our Pacific Coast ports to the Orient are petroleum and flour, though this latter is in small volume relatively. The oil shipped to the Orient from Pacific ports is taken from the wells in California, refined in San Francisco, or shipped crude from Port Orient. The flour shipped from Seattle is made of wheat grown on the Western slope, or comes from Minneapolis at rates that put it on an equal footing with Pacific Coast flour.

Let it be granted that a huge American tonnage for the Orient will ultimately originate within striking distance of the Coast. Then, who will carry it? This is the second, and most significant, part of the problem. To-day, as I have pointed out, the American tonnage of liners far overtops the tonnage of all other nationalities combined. Is this a permanent condition, or must it change?

WHO IS TO CONTROL PACIFIC TRADE?

All signs point to a change. That change will probably be brought about by the wholesale purchase of the American ships that now carry the Stars and Stripes, and their registry under another flag — the flag of Japan. The sale may not be made to-day, nor to-morrow. It will be made when the commercial genius of the Japanese decides that the time has come. Already the tonnage of the American fleets is quoted far below the cost of replacement.

How much cheaper the Japanese may buy these ships no one can say. Perhaps they will never buy them. I don't know why they should, except at their own prices. Every student of Japan knows that to-day they can build great ships in the docks of Japan at prices that astonish us. When one takes up the Japanese report, and reads that the average wages of a Japanese shipbuilder are thirty-two cents a day, and that there are nearly twenty thousand men at work in two hundred and sixteen shipbuilding plants in the Empire, one ceases to wonder at the ability of the Japanese to turn out great ships in competition with American plants manned by builders at four dollars a day.

In this matter of building ships, America has never excelled. That she can rival Japan, even to-day, cannot be entertained for a minute. The matter of wages is one insurmountable obstacle. Government bounties are paid in Japan to every Japanese who builds a ship of 700 tons or more. To-day the Government of Japan is straining every effort to make, at its foundry at Wakamatsu, the steel plates, rivets, beams, and other parts of great ships that hitherto the Japanese have had to import at high prices. Timber is cheaper than it is here, for Japan has more than 50,000,000 acres of standing timber, and labor ranges from nineteen dollars a year to ninety.

THE CHEAPNESS OF JAPANESE SAILORS

This item, the cost of building ships, is merely the first item in the count against American shipping on the Pacific. There remains an even more important item, namely the cost of operating the ships when built. In this matter, America is hopeless. The average wages of an American able bodied seaman, according to the Bureau of Navigation, are from $15 to $45 a month, and found. It is probably quite conservative to average the entire crew, including officers, at $30 per month apiece. The average on a Japanese liner in the same service is less than $10. On top of this, there is a difference in the cost of feeding the crew, the American sailor demanding rations that cost from 200 to 300 per cent. more than the normal rations of a Japanese crew.

Ten years ago, when the Japanese liners were new in the trade, they manned their ships with Americans, Japanese, and Chinese. The officers were mostly American, or English, and were paid the American scale. As time went on, the Japanese sailors learned the trade.

For a time, the habit was to have two captains, one white, the other Japanese. To-day the white man is quite generally discarded. The crews and officers of the Nippon Yusen Kaisha and the Toyo Kisen Kaisha are Japanese and Chinese. They have no fights with labor unions.

The Japanese and the American ships lie side by side at the docks of San Francisco. Both interchange freight and passengers with all the railroads, under contracts. Both get the same rates. At every important point, the Pacific Mail Steamship Company and the Japanese Companies have a "joint agency" that takes contracts for both.

The difference is simply this — that, while the Pacific Mail and the Occidental & Oriental, American and British lines, can barely make a living and keep their heads above water on the rates they get, the Japanese fleet getting the same rates, makes a good profit. Nobody attempts to deny this fact. It is written clearly enough in the annual reports of the Pacific Mail, and you may get it from the lips of any officer of the Pacific Mail whenever you care to ask. The mere fact that the company does a gross business of $5,000,000 or so a year and makes a profit, by hard figuring, that ranges from $100,000 to $300,000, speaks for itself. While the stock of the Pacific Mail reached a maximum price of 41½ per cent. in 1907, the stock of the Nippon Yusen Kaisha, on the bourse at Tokio, sold at 300 per cent. That is the difference.

Everyone who knows anything about shipping knows that the British can build ships, man ships, and operate ships at a cost that cannot be equaled in America. For a half-century, British commerce has ruled the seas. Her merchantmen have carried from 60 to 70 per cent. of all the trade that flowed along the paths of the seven seas. Yet, within this past year, her mighty Peninsular & Oriental Steamship Company, the pioneer of the Orient, has dipped its flag to the flag of Japan. For half a century or more, the ships of the Peninsular & Oriental did a profitable business in the coasting trade in the Yellow and Japan Seas, back and forth from Japan to China, Korea, the Straits Settlements, India, and Australia, and thence by the Suez Canal to England. But to-day the directors of the Peninsular & Oriental admit that the Japanese new lines across and up and down the Yellow Sea can drive the Peninsular & Oriental out of the trade.

Fifteen years ago there were hardly any Japanese trading ships afloat, except the little *sampans* that knocked about the coast, and the fishing fleets of open boats that toiled in the inlets. The map that is printed in this article is an official map, showing the Japanese lines in existence in 1907. The official statement of Japanese steamship tonnage afloat is shown in the diagram on page 10939.

Japan, within the past twelve years, has put her vessels on the four great trade routes of the world, to America, England. India, and Australia. In addition, she has nine distinct trade routes to the litoral of Asia, with vessels making trips under steam at least once a week. Every single one of the lines engaged in all the traffic gets a subsidy from the Government, the amount of it depending on the distance run and the tonnage of vessels.

To sum up the situation on the Pacific Coast, there are four chief factors in this trade problem. They are, first, the huge American fleet, consisting of possibly 175,000 tons of trans-Pacific shipping. This fleet handles the bulk of the business, but handles it either at a dead loss or at profits infinitely small. It has no subsidies, but has hopes of some small donations in this line sometime or another. It mans its ships with American sailors, pays tribute to the labor unions, and starves, so far as dividends are concerned.

Second in importance are the tramp steamers, mostly British, making the bare living that satisfies the tramp captain the world over. They pay the British scale of wages, and employ anyone, from a younger son of a British earl to a Malay from the Straits. If the trade does not give them a living, they up-anchor and sail for the Gold Coast, or anywhere else they like.

The Canadian Pacific fleet takes third place. It is in a position quite unique. It has back of it ten thousand miles of good railroad all its own so far as tonnage is concerned, a fleet on the Atlantic that brings it much "fast freight" from England for the Orient, the unlimited appetite of the British Isles for tea from China, the glamour of the "all-red route" from Southampton all around the world—and an indulgent government. Britain pays it subsidies.

Fourth, at present, comes the Nippon fleet, half a dozen comparatively small and insignificant vessels, earning money all the time. They slide up and down the coast, from Puget Sound to far Iquique, taking whatever

comes at regular rates, raising no row of any sort, but attending strictly to business. They have no fight with anyone except the tramps; and they are not bound by any restrictions to file rates and give the tramps a three days' notice. There are not on record many instances of a tramp steamer taking tonnage off the docks when a Japanese liner was not full.

The American fleet is there largely because of patriotism and the spirit of fight, not because it can earn money. The Canadian fleet is something similar, except for those subsidies. The Japanese and the tramps are there on business. Who can doubt that in the end, unless conditions change as by a miracle, the two business factors will handle the trade?

MUTUAL TOWN-BUILDING IN ENGLAND

"GARDEN CITIES" OF INDIVIDUAL, DETACHED HOMES BUILT WITHOUT THE AID OF PHILANTHROPY—A BETTER PLAN THAN REBUILDING THE SLUMS

BY

WILHELM MILLER

(WHO VISITED THESE CITIES TO MAKE A FIRST HAND STUDY OF THEM)

LETCHWORTH, "the perfect city," less than five years old but with 6,000 inhabitants, is thirty-four miles north of London and is reached by the best trains in fifty minutes. It has 3,818 acres and its population is limited to 35,000 inhabitants, so that there will never be any crowding. The factory quarter can never be enlarged; it is situated as far as possible from the residence quarter and the prevailing wind carries the smoke away from the homes. Nearly one-sixth of the town site, or two hundred acres, is perpetually reserved for open spaces, including parks, playgrounds, and a golf course. And even if the surrounding country should build up as solidly as London, the people of Letchworth are always sure of enjoying a beautiful rural scene because a large belt is perpetually reserved for agriculture. This belt comprises 2,500 acres, or 65 per cent. of the whole estate. It will undoubtedly be occupied by market gardeners and dairymen, for gardens yield about eleven times as much profit per acre as farms.

A man can buy a house at Letchworth or he can rent one, but he cannot buy the land. He cannot even lease it for 999 years, because that would enable him to sell or lease his property in such a way as to make a profit from the unearned increment. He can lease the land for ninety-nine years without revaluation and the improvements will not revert to the landowner. In any case, he has every advantage enjoyed by the man who owns the land outright — save one. He cannot get rich from what Henry George called the "unearned increment" but which in Letchworth is called the "collectively earned increment." Even if he rents his house and land from week to week he cannot be dispossessed by some one who offers more money. In the agricultural belt, the tenant is allowed to continue in occupation as long as he is willing to pay as much as anyone else, less 10 per cent. in favor of the present tenant.

Letchworth has been built upon a plan whereby people in any part of the world can make a city that is practically perfect without asking any rich man to give money, and without facilities for borrowing any large amount. The essence of the scheme is to preserve to the people the "collectively earned increment." The Letchworth people take some pride in the use of this phrase, and justly. For, merely by moving to Letchworth and living there they created in four and a half years a net increase of half a million dollars. They do not get that half million now, but some day they will get 95 per cent. of it in the form of abolition of taxes. And that day, in my opinion will come in about twenty years, for by that time the city should be able to pay back all that its public works have cost.

THE TWO OTHER "GARDEN CITIES"

There are two other successful "garden cities," Bourneville, a suburb of Liverpool

built by the Cadbury Cocoa Works, and Port Sunlight near Birmingham created by the Lever Brothers, soap manufacturers, solely for their employees.

Port Sunlight is the most beautiful because the Messrs. Lever have gone to the unnecessary extreme of making no two houses alike. Also, they have spent more upon ornamentation of houses than is necessary and they plant and care for all the front yard gardens.

The tenants at Port Sunlight get more for their money than elsewhere for two reasons. First, the rents are too low, because they are calculated only to pay expenses. Second, the social institutions, though more elaborate than elsewhere, cost the people nothing originally and they can and do manage them so as to keep expenses down to the mininum.

THE "TAINT" OF PHILANTHROPY

The one great drawback to the Port Sunlight idea is that it involves too great an expenditure on the part of one man or one firm, and it is hard to prove to a factory owner that the investment is worth while. In this case, the factory owners disclaim all idea of philanthropy and are positive that it pays, because their employees are healthier, happier, more prosperous and therefore more efficient.

The Lever Brothers rejected all direct profit-sharing schemes because they thought this the only plan that would benefit the wives and children of the men. There is the keenest competition for a chance to work in that factory and live in one of those houses. But all the profits to the firm are indirect. Rarely, if ever, can they be expressed in dollars and cents and indirect profits can never be expected to weigh in the mind of the average employer against the appalling fact that Lever Brothers have put about $1,700,000 into their paradise at Port Sunlight and have never directly gotten back one cent.

In other words, if this is not philanthropy, it is too much like it to be generally copied. Humanity cannot look to great employers for the solution of the housing problem. And employees do not want philanthropy.

And at Bourneville there is less of the philanthropic spirit. The employees of the Cadbury Cocoa Works get a normal social life, which the people of Port Sunlight do not have. The cocoa workers are not obliged to live in Bourneville and only 42 per cent. of the tenants at Bourneville are employed at the Cadbury factory. Thus Bourneville is a mixed community and the ideal community must be mixed — not merely industrial, or suburban, or composed exclusively of any one class. It is sad to see the magnificent clubs, lecture halls, baths, and other social features at Port Sunlight languish for attendance, but it is only human nature. On getting home after a day's work, a man wants to forget thoughts of his work. And if he lives in a city where every house and every person he sees on the street suggests the workroom, he is bound to escape to the next town where he can get a drink or otherwise forget his daily routine. The only serious complaint which the tenants at Port Sunlight have any right to make is that they live in the atmosphere of a single class.

Mr. Cadbury gave Bourneville to the people. How then does it escape the "taint" of philanthropy?"

A GREAT FUND FOR PROPAGANDA

It is true that Mr. Cadbury gave the property to a trust which administers it for the benefit of the people, but eventually this trust will be able to finance hundreds of other garden cities that will be purely coöperative. For instance, people wishing to live in a "garden city," where all the "collectively earned increment" benefits all alike instead of going to the building up of individual fortunes, can form a stock company with shares as low as $25. If the Bourneville trust approves of their plan, it will lend them enough money to start a town. But the company must pay it back, so that the Bourneville trust can use it again and again.

How does the Bourneville trust hope to get this fund? Its income, which is almost wholly rent, doubles every five years. At this rate, in fifty years it will have an annual income of five million dollars. Long before that, Bourneville will have reached its limit of population. And since the trust never has to pay back the cost of the houses, roads, or other public works, it will be able to roll up a vast sum for the propagation of the "garden city" idea.

The all-important point is that the Bourneville trust will never give anyone something for nothing. It will merely lend money to people who are building "garden cities."

THE HEALTH AND BEAUTY OF THESE CITIES

These are far healthier and more beautiful than cities that have grown up normally;

healthier because crowding is prevented by a limit to the population and because more and better provision is made for outdoor sports — to say nothing of architecture in which health is the first thought. The average town death-rate in England is 15 per 1,000. Letchworth has cut this down to 2.75. The birth-rate at Port Sunlight is twice the average for the rest of England.

The greater beauty of these garden cities lies chiefly in the architecture and gardening. The houses and stores all conform to one general style of architecture, but are never monotonous. Every building must be approved by the city's architect. The houses are all of brick and built to last. There are no long rows of houses just alike. The first idea was to have no two houses alike but that is a needless waste of money. For poor people it is impossible to get good houses cheap enough without building three or four in a row and this row can be duplicated in another part of town without harming the total effect. Moreover, Bourneville has shown how much can be saved on ornamentation. The plainest houses are transformed in three years by the use of climbers. Bourneville's head gardener sees that every house has a different set of vines. Not merely is the plainness soon hidden thereby, but also the individuality of each home is notably increased.

Gardening is compulsory at Bourneville and Letchworth. If a tenant neglects his garden at Bourneville and will not hire some one to weed it, the estate notifies him that he will forfeit his lease unless he makes his place look decent. But there have been only two cases of neglect.

The estate plants a hawthorn hedge all round each man's place, digs and manures his vegetable garden, lays down the lawn, sets out dwarf fruit trees, plants the climbers on his house, and digs his flower-beds. These expenses are considered part of the cost of building and the rent is based thereon. The tenant must keep it in good condition but he can buy plants from the estate cheaper than from a nurseryman and he gets instruction for nothing. There is no chance for a beginner to get discouraged.

A FIVE-ROOM HOUSE FOR $7.80 A MONTH

I am almost afraid to tell how much a tenant gets for his money at one of these garden cities. The cheapest houses at Bourneville rent for only $7.80 a month, which includes taxes and water rates. Such a house contains five rooms and a wonderful "folding bath" which stands up like a cabinet when not in use. Clerks and artisans, however, generally pay about $12.30 a month for seven rooms and an eighth of an acre.

The ideal amount of land at Bourneville is one-eighth of an acre, and the average value of the fruits and vegetables produced on such a plot is about $32.24 a year, or sixty-two cents a week the year round. The smallest lots at Letchworth are a twelfth of an acre, which is the same as 25 x 145 feet, and is 45 per cent. larger than the typical New York lot, on which many families are allowed to live. In addition to these direct benefits the tenant gets a chance to play cricket, tennis, bowls, quoits, and hockey near by at no expense or at less cost than in an ordinary club.

All rents at Bourneville are figured at 8 per cent. of the cost. Taxes, insurance and repairs cost 3 per cent., leaving a profit to the Bourneville estate of 5 per cent. With this 5 per cent. it employs a permanent staff of about one hundred builders and has about fifty houses under construction all the time.

OBSTACLES OVERCOME AT LETCHWORTH

The Letchworth company had its hands full with public works, for it had to construct eight miles of road, eleven miles of sewers, and seventeen miles of water main. Also it had to build a reservoir for water, a gas making plant, and an electric power station to supply the factories, of which it now has twenty-four. Another difficulty overcome was transportation. The company has coöperated with the railroad so well that its "commuters" can make their thirty-four miles to and from London daily in less than an hour, though most trains require an hour and a quarter.

The income of the land company is partly from the sale of water, gas, and electricity, but chiefly from ground rent. It never sells any land or houses. Ground rent may seem a very small source of revenue, but every man, woman and child in England contributes for ground rent an average of $10.50 a year. The Letchworth company can, and doubtless will, raise the ground rent as its limit of population approaches, but even if it should raise it as high as the average for England, the tenant will pay less than elsewhere, for taxes will eventually be abolished.